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Birds of Parque Nacional do Caparaó, Atlantic Forest, southeastern Brazil

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Abstract

Parque Nacional do Caparaó is located in the Serra do Caparaó in the southeastern region of Brazil. It lies on the border between the states of Espírito Santo and Minas Gerais. It is a large fragment of Atlantic Forest vegetation, with altitudinal variation from 630 to 2,892 m. We present an annotated list of bird species found in the park based on data collected from 2012 to 2018. We recorded 216 species, including 66 endemic, 22 threatened, and 17 newly recorded species. To complete the list of species, we added data available in several bibliographic sources and digital databases, bringing the total number of bird species in the park to 348 and including 98 endemic and 33 threatened species. This work is the first to present an updated list of birds for the park, and the data presented show the importance of this protected area for conservation of birds in the region.

Keywords

Birdlife, conservation unit, diversity, inventory, Serra do Caparaó

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Introduction

Brazil has an incredibly rich avifauna, representing almost a quarter of the world's bird species, but Brazil is also among the countries with the greatest number of globally threatened species (Pacheco et al. 2021; BirdLife International 2021; Remsen et al. 2021). This is also true for the Atlantic Forest, a hotspot of global biodiversity which harbors many of these species (Stotz et al. 1996; Myers et al. 2000).

The Atlantic Forest originally extended along the whole Brazilian coast, with small portions in Argentina to the south and Paraguay to the north (Morellato and Haddad 2000). Only 12.4% of the original forest cover still remains, scattered in small unconnected fragments (Ribeiro et al. 2009; SOS Mata Atlântica 2020; Projeto MapBiomas 2021). The high diversity and high rates of endemism and endangered species make this biome a hotspot for global biodiversity and a priority for conservation (Myers et al. 2000).

Parque Nacional do Caparaó (PARNA Caparaó) is a federal conservation unit in the Serra do Caparaó, a

mountain range that is part of the Serra da Mantiqueira, which has Atlantic Forest vegetation throughout. This national park straddles the border between the states of Espírito Santo and Minas Gerais and comprises about 32,000 ha. The elevation of the park ranges from 630 to 2,892 m and includes Brazil's third highest peak, Pico da Bandeira (ICMBio 2015). It is part of the Central Biodiversity Corridor of the Atlantic Forest (Galindo-Leal and Cãmara 2005), which is under pressure from deforestation, hunting, introduction of exotic species, urban and industrial expansion, tourism, and degradation of mangrove and restinga ecosystems (Aguiar et al. 2005).

The first known ornithological expeditions to the region date back to 1922, when Ernst G. Holt and Pedro P. Peixoto-Velho collected specimens in the Caparaó Mountains (Peixoto-Velho 1923). In 1929, Emil Kaempfer explored the PARNA Caparaó and its surroundings, which resulted in collection of hundreds of specimens (Naumburg 1937, 1939). Other naturalists who briefly visited and collected specimens in the Caparaó Mountains were Emilie Snethlage in 1929, Helmut Sick in 1941, and Augusto Ruschi in 1957 (Bauer 1999; Sick 2001; Vasconcelos and Pacheco 2012). Other sporadic visits to the park resulted in additional specimen collection along with audiovisual records, with data now dispersed in several collections and citizen-science platforms. However, these have never been fully reviewed or published.

Although the Caparaó Mountains attracted researchers' interest since early 20th century, there is little information published about the region's avifauna. Ruschi (1978) presented a complete list for the park, but with many controversial and doubtful records (Pacheco and Bauer 2001), while Vasconcelos (2003) presented data specifically for PARNA Caparaó's highlands. Therefore, most information is in gray literature, such as technical reports, dissertations, and hard-to-find journals (e.g., Peixoto-Velho 1923; Bauer 1999; de Paula and Carvalho 2007), or dispersed in books and scientific papers with brief observations from PARNA Caparaó (e.g., Melo-Júnior 1996; Vasconcelos and Rodrigues 2010; Chaves et al. 2015). Furthermore, there are hundreds of bird records for PARNA Caparaó in citizen-science online platforms, collected by many collaborators.

Thus, our aim is to present a list of birds of Parque Nacional do Caparaó based on data collected from 2012 to 2018. To have a more complete checklist of the park's avifauna, we also present an updated concatenated list of birds for Caparaó National Park, including records made by other authors and citizen scientists.

Study Area

PARNA Caparaó is a Brazilian national park managed by the Chico Mendes Institute for Biodiversity Conservation (ICMBio). It is located in Serra do Caparaó (20°19′ – 20°37′ S and 041°43′ – 041°53′W) and straddles the border between Espírito Santo and Minas Gerais (Fig. 1). The predominant climate, according to the Köppen classification, is the Cwb type, subtropical highlands with dry winters, where temperature depends strongly on the relief. The relative humidity is around 70%, with temperatures between 8 and 26 °C, the maximum reaching 31 °C and the minimum 2 °C (Alvares et al. 2013; ICMBio 2015). The altitude varies from 630 m in the lowest areas to 2,892 m on Pico da Bandeira. The annual rainfall varies between 1,000 and 1,500 mm, with November, December, and January being the rainiest months, and June, July, and August the driest ones (ICMBio 2015). The park is inserted in the Atlantic Forest biome, with seasonal montane semideciduous forest vegetation in the western side of the park, montane rainforest and upper montane rainforest in the eastern side, and Campos de Altitude (high-elevation grassland) vegetation in both sides above 1,600 m (ICMBio 2015; Garbin et al. 2017).

Our fieldwork was conducted at three locations (Fig. 1, Table 1):

1) Alto Caparaó: situated in Minas Gerais, on the western slope of PARNA Caparaó; the Alto Caparaó entrance of the park is the one with the most visitors during the year. The altitude ranges from 1,250 to 2,892 m, with typical montane semideciduous forest vegetation and Campos de Altitude above 1,800 m.

2) Pedra Menina: in the southwestern portion of the park; the Pedra Menina entrance is in Espírito Santo and is the second most visited part of the park. The surveyed area, however, comprises both Minas Gerais and Espírito Santo. The altitude ranges from 1,400 to 2,892 m, with typical upper montane rainforest vegetation and Campos de Altitude above 1,900 m.

3) Santa Marta: in Espírito Santo, on the eastern slope of the park; the Santa Marta checkpoint has no entrance for visitors and is the least visited area among the three locations we sampled. It has the lowest altitudes of the locations we sampled, ranging from 900 to 1,200 m, and had typical montane rainforest vegetation.

Methods

Fieldwork. Data collections occurred only within the limits of PARNA Caparaó in two stages. The first stage occurred from 2012 to 2014, with 14 sampling campaigns of three days each, at the the three selected areas of the park (SISBIO/ICMBio permission 23763-1; CEMAVE permission 3578/1; 3578/2). The second stage took place in five sampling campaigns of two days between 2014 and 2018 (SISBIO/ICMBio permissions 48868-1, 48868-2, 58587-1, 62651-1; CEMAVE permissions 3901/1; 4118/1), during the field ornithology course in Alto Caparaó. In total, 19 sampling campaigns were conducted in PARNA Caparaó.

The following methods were used during all visits to the park:

1) Point counts. We marked 10 points at least 200 m apart along a trail. All species seen and/or heard were

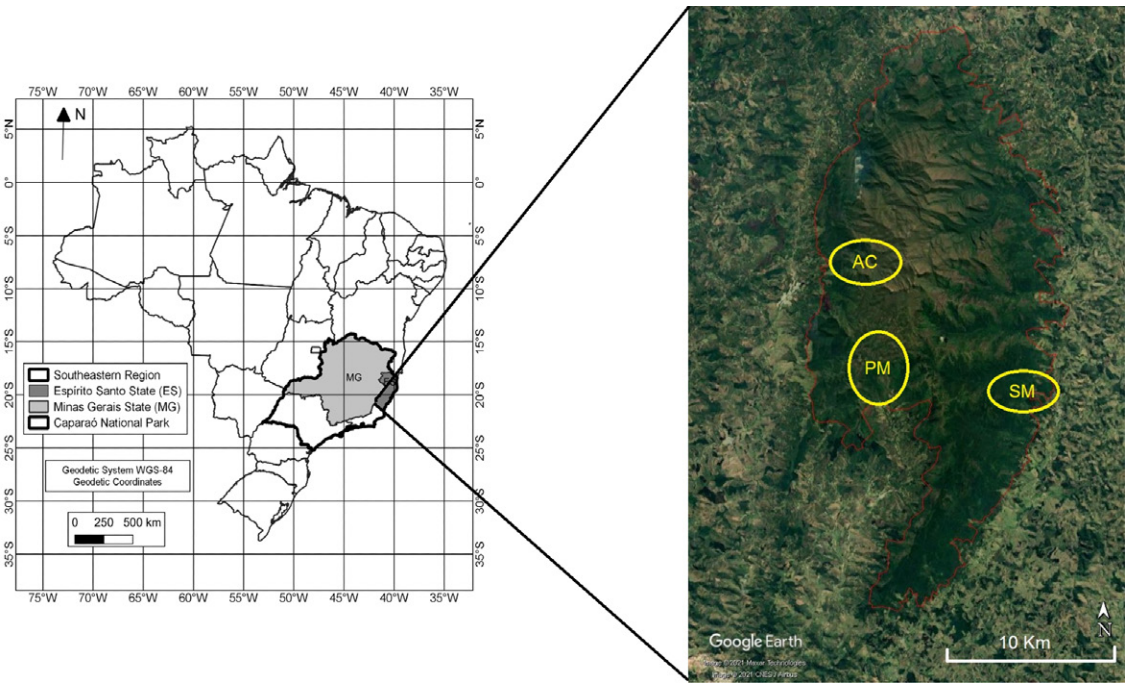

Figure 1. Brazil map with the location of PARNA Caparaó and areas sampled. Red lines are the Park's limits. AC = Alto Caparaó; PM = Pedra Menina; SM = Santa Marta.

Table 1. Sites sampled within PARNA Caparaó, with the geographic coordinates and altitude gradient of each sampled area.

Sites	Geographic coordinates	Altitude gradient (m)
Alto Caparaó (AC)	20°29′0.5″ to 20°30′02″S, 041°49′09″ to 041°49′20″W	1256–1778
Pedra Menina (PM)	20°29′24″ to 20°29′32″S, 041°44′06″ to 041°44′47″W	1500–1895
Santa Marta (SM)	20°24′25″ to 20°25′18″S, 041°50′27″ to 041°51′02″W	900–1210

recorded in a 10-minute period at each point, to determine bird richness and abundance. This method was used only in the morning, on the first day of each visit, starting at 06:00 until the end of all points, totaling 31.6 hours.

2) Mist nets. We set up 6–10 nets, each 12 m long and 3 m high, during the morning (06:00–11:00) and the afternoon (15:00–18:00). This method was used on the second day of each visit, totaling 152 net-hours.

3) Qualitative survey. We included all bird species seen/heard while carrying out the methods described above and during the entire time we remained in the park, when we were not performing the point count and mist net methods. The qualitative surveys totaled 52 observation days.

We used Swarovski 8 × 20 and Bushnell 10 × 50 binoculars, and we referred to Erize et al. (2006) and Ridgely and Tudor (2009) for species' identifications. For recording bird calls, we used a Sony ICD-PX240 digital recorder and Sennheiser ME66 microphone. The recordings were deposited in the Fonoteca Nacional Jacques Vielliard (FNJV) of Universidade Estadual de Campinas. We used a tablet with a database of vocalizations of several birds to assist in the confirmation of voices heard when we had doubt.

At Alto Caparaó, special mention should be made of the Vale Verde region, where we recorded some interesting species. The waterfalls there form natural pools surrounded by riparian forest at altitudes of 1,400–1,500 m, and these attract many tourists. At Pedra Menina and Alto Caparaó, altitudes above 1,900 m were sampled in some visits during the qualitative survey, in which there was predominance of the Campos de Altitude vegetation.

Review. Here we also included secondary data based on our review of the literature, and these data were used to generate a standardized list for PARNA Caparaó (Appendix Table A1). Thus, we combine published results of Peixoto-Velho (1923), Bauer (1999), Sick (2001), Vasconcelos (2003), de Paula and Carvalho (2007), and data from the citizen-science online platforms WikiAves (2021) and Xeno-canto (2021), with data from museum collections, which are available at the online platforms Species Link (2021) and GBIF (2021). We did not include data from birdwatching databases (e.g., Ebird, available at GBIF) that did not include audiovisual material. For specimens deposited in the AMNH, we also consulted Resende and Vasconcelos (2017).

We decided not to include the complete list by Ruschi (1978) in the concatenated list. We included only the records confirmed by other sources, because there are criticisms about Ruschi's erroneous and inconsistent records from Espírito Santo (Pacheco and Bauer 2001), including his list from PARNA Caparaó. There is a need

for further review of Ruschi's records. However, we mention Ruschi's list in our discussion of species.

As de Paula and Carvalho (2007) specified their localities, we did not include records from adjacent areas of the park. In the WikiAves (2021) and Xeno-canto (2021) website, we searched for the term "Parque Nacional do Caparao", so that we could retrieve records obtained within the park without including those from adjacent areas. To search in Species Link (2021) and GBIF (2021), we used the terms "Caparao", ″Serra do Caparao", "PARNA Caparao", and "Parque Nacional do Caparao". We used this review to discuss our results and to generate Appendix Table A1.

Scientific nomenclature and species taxonomic sequences followed the guidelines of the Brazilian Committee of Ornithological Records (CBRO) (Pacheco et al. 2021). Conservation status follows Copam (2010) for Minas Gerais, Chaves et al. (2019) for Espírito Santo, and ICMBIO (2018) for Brazil. Globally threatened species are cited in the text, following IUCN (2020). We followed Stotz et al. (1996) and Vale et al. (2018) in classifying endemic species, considering the species accepted by Pacheco et al. (2021). For species with "restricted distribution" we followed Bencke et al. (2006). The migratory species are based on Somenzari et al. (2018).

Data analysis. In our analysis of the data to determine if the number of samples was sufficient from PARNA Caparaó, a species accumulation curve was plotted in RStudio with the aid of the BiodiversityR (Kindt 2019) and vegan (Oksanen et al. 2019) packages. The frequency with which birds were recorded in the samplings was calculated by the frequency of occurrence (FO%) of the species according to the proposal of Vielliard and Silva (1990).

Results

Here we list 216 bird species for PARNA Caparaó. Of the species recorded, 17 (7%) are newly recorded from the park. We found 66 (31%) species that are endemic to the Atlantic Forest and 22 (10%) species classified as threatened in Espírito Santo (n = 20), Minas Gerais (n = 9), and Brazil (n = 3) (Table 2).

Of the endemic species recorded, 64 have a restricted distribution. We recorded 15 migratory species, separating them into "migratory" and "partially migratory". Of these, three are migratory and 12 are partially migratory (Table 2).

Passeriformes was the most representative order (64% of total species), with the richest families being

Table 2. Birds recorded in Parque Nacional do Caparaó from 2012 to 2018. Conservation status: CR- Critically endangered, EN- Endangered, VU- Vulnerable. Endemic species (Endem.), Endemic species with restricted distribution (E.R.D.). Migratory status: M = Migratory, PM = Partially migratory. Occurrence frequency (F.O.%).

Family	Species	F.O. (%)	Voucher	Status			Endem.	E.R.D.
				ES	MG	BR		
Tinamidae Gray, 1839								
	Crypturellus obsoletus (Temminck, 1815)	94.7						
	Crypturellus tataupa (Temminck, 1815)	5.3						1
Cracidae Rafinesque, 1815								
	Penelope superciliaris Temminck, 1815	42.1						
	Penelope obscura Temminck, 1815	63.2						
Odontophoridae Gould, 1844								
	Odontophorus capueira (Spix, 1825)	5.3		EN	EN		1	
Columbidae Leach, 1820								
	Patagioenas picazuro (Temminck, 1813)	73.7						
	Patagioenas cayennensis (Bonnaterre, 1792)	15.8						
	Patagioenas plumbea (Vieillot, 1818)	47.4						
	Leptotila verreauxi Bonaparte, 1855	15.8						
	Leptotila rufaxilla (Richard & Bernard, 1792)	26.3						
	Columbina talpacoti (Temminck, 1810)	26.3						
	Columbina squammata (Lesson, 1831)	5.3						
Cuculidae Leach, 1820								
	Tapera naevia (Linnaeus, 1766)	5.3						
	Piaya cayana (Linnaeus, 1766)	63.2						
Caprimulgidae Vigors, 1825								
	Nyctidromus albicollis (Gmelin, 1789)	10.5						
	Hydropsalis torquata (Gmelin, 1789)	5.3						
Apodidae Olphe-Galliard, 1887								
	Streptoprocne zonaris (Shaw, 1796)	10.5						
	Chaetura meridionalis Hellmayr, 1907	5.3						
Trochilidae Vigors, 1825								
	Phaethornis pretrei (Lesson & Delattre, 1839)	21.1						
	Phaethornis eurynome (Lesson, 1832)	89.5					1	1

Family	Species	F.O. (%)	Voucher	Status			Endem.	E.R.D.
				ES	MG	BR		
	Colibri serrirostris (Vieillot, 1816)	10.5						
	Heliodoxa rubricauda (Boddaert, 1783)	52.6					1	1
	Heliomaster squamosus (Temminck, 1823)	5.3						
	Calliphlox amethystina (Boddaert, 1783)	5.3						
	Chlorostilbon lucidus (Shaw, 1812)	21.1						
	Stephanoxis lalandi (Vieillot, 1818)	42.1	FNJV 50048	EN			1	1
	Campylopterus largipennis (Boddaert, 1783)	5.3						
	Thalurania furcata (Gmelin, 1788)	10.5						
	Thalurania glaucopis (Gmelin, 1788)	68.4					1	1
	Aphantochroa cirrochloris (Vieillot, 1818)	10.5					1	1
	Chrysuronia versicolor (Vieillot, 1818)	5.3						
	Leucochloris albicollis (Vieillot, 1818)	63.2	FNJV 50030				1	1
	Chionomesa fimbriata (Gmelin, 1788)	5.3						
	Chionomesa lactea (Lesson, 1832)	10.5						
Rallidae Rafinesque, 1815								
	Aramides cajaneus (Statius Müller, 1776)	47.4						
	Aramides saracura (Spix, 1825)	10.5					1	1
Charadriidae Leach, 1820								
	Vanellus chilensis (Molina, 1782)	10.5						
Cathartidae Lafresnaye, 1839								
	Coragyps atratus (Bechstein, 1793)	73.7						
	Cathartes aura (Linnaeus, 1758)	21.1						
	Cathartes burrovianus Cassin, 1845	5.3						
Accipitridae Vigors, 1824								
	Harpagus diodon (Temminck, 1823)	5.3						
	Ictinia plumbea (Gmelin, 1788)	15.8						
	Heterospizias meridionalis (Latham, 1790)	10.5						
	Rupornis magnirostris (Gmelin, 1788)	10.5						
	Geranoaetus albicaudatus (Vieillot, 1816)	10.5						
	Buteo albonotatus Kaup, 1847	5.3						
Strigidae Leach, 1820								
	Pulsatrix koeniswaldiana (Bertoni & Bertoni, 1901)	10.5					1	1
	Glaucidium brasilianum (Gmelin, 1788)	5.3						
Trogonidae Lesson, 1828								
	Trogon viridis Linnaeus, 1766	52.6						
	Trogon surrucura Vieillot, 1817	21.1					1	1
	Trogon rufus Gmelin, 1788	31.6	FNJV 50054					
Momotidae Gray, 1840								
	Baryphthengus ruficapillus (Vieillot, 1818)	5.3		EN			1	1
Alcedinidae Rafinesque, 1815								
	Megaceryle torquata (Linnaeus, 1766)	5.3						
Bucconidae Horsfield, 1821								
	Nystalus chacuru (Vieillot, 1816)	5.3						
Ramphastidae Vigors, 1825								
	Ramphastos dicolorus Linnaeus, 1766	94.7	FNJV 50041				1	1
	Pteroglossus bailloni (Vieillot, 1819)	10.5			VU		1	1
	Pteroglossus aracari (Linnaeus, 1758)	10.5						
Picidae Leach, 1820								
	Picumnus cirratus Temminck, 1825	57.9						
	Veniliornis maculifrons (Spix, 1824)	10.5					1	1
	Campephilus robustus (Lichtenstein, 1818)	26.3					1	1
	Dryocopus lineatus (Linnaeus, 1766)	21.1						
	Piculus polyzonus (Valenciennes, 1826)	5.3				EN	1	
	Piculus aurulentus (Temminck, 1821)	42.1					1	1
	Colaptes campestris (Vieillot, 1818)	21.1						
Cariamidae Bonaparte, 1850								
	Cariama cristata (Linnaeus, 1766)	21.1						
Falconidae Leach, 1820								
	Herpetotheres cachinnans (Linnaeus, 1758)	15.8						
	Micrastur ruficollis (Vieillot, 1817)	10.5	FNJV 50031					
	Micrastur semitorquatus (Vieillot, 1817)	5.3						

Family	Species	F.O. (%)	Voucher	Status			Endem.	E.R.D.
				ES	MG	BR		
	Caracara plancus (Miller, 1777)	31.6						
	Milvago chimachima (Vieillot, 1816)	52.6						
Psittacidae Rafinesque, 1815								
	Brotogeris tirica (Gmelin, 1788)	57.9					1	1
	Pionus maximiliani (Kuhl, 1820)	73.7						
	Amazona vinacea (Kuhl, 1820)	36.8	FNJV 50016	EN	VU	VU	1	1
	Amazona farinosa (Boddaert, 1783)	5.3		EN	CR			
	Pyrrhura frontalis (Vieillot, 1817)	78.9					1	1
	Primolius maracana (Vieillot, 1816)	47.4						
	Psittacara leucophthalmus (Statius Müller, 1776)	5.3						
Thamnophilidae Swainson, 1824								
	Rhopias gularis (Spix, 1825)	15.8	FNJV 50042				1	1
	Dysithamnus mentalis (Temminck, 1823)	15.8						
	Herpsilochmus rufimarginatus (Temminck, 1822)	21.1						
	Thamnophilus ruficapillus Vieillot, 1816	21.1	FNJV 50052					
	Thamnophilus caerulescens Vieillot, 1816	78.9						
	Taraba major (Vieillot, 1816)	5.3						
	Hypoedaleus guttatus (Vieillot, 1816)	10.5		VU			1	1
	Batara cinerea (Vieillot, 1819)	21.1		VU				
	Mackenziaena leachii (Such, 1825)	63.2		EN			1	1
	Mackenziaena severa (Lichtenstein, 1823)	15.8					1	1
	Pyriglena leucoptera (Vieillot, 1818)	78.9					1	1
	Drymophila ferruginea (Temminck, 1822)	26.3	FNJV 50023				1	1
	Drymophila genei (Filippi, 1847)	73.7	FNJV 50024, 50025, 50026	EN	VU		1	1
	Drymophila ochropyga (Hellmayr, 1906)	52.6	FNJV 50027				1	1
Conopophagidae Sclater & Salvin, 1873								
	Conopophaga melanops (Vieillot, 1818)	5.3					1	1
	Conopophaga lineata (Wied, 1831)	84.2	FNJV 50021				1	1
Grallariidae Sclater & Salvin, 1873								
	Grallaria varia (Boddaert, 1783)	15.8		EN	CR	VU		
Rhinocryptidae Wetmore, 1926 (1837)								
	Eleoscytalopus indigoticus (Wied, 1831)	5.3		EN			1	1
	Scytalopus speluncae (Ménétriès, 1835)	57.9	FNJV 50044	EN			1	1
Formicariidae Gray, 1840								
	Chamaeza campanisona (Lichtenstein, 1823)	10.5		EN				
	Chamaeza meruloides Vigors, 1825	100	FNJV 50018				1	1
Dendrocolaptidae Gray, 1840								
	Sittasomus griseicapillus (Vieillot, 1818)	100						
	Dendrocincla turdina (Lichtenstein, 1820)	31.6					1	1
	Dendrocolaptes platyrostris Spix, 1825	52.6						
	Xiphocolaptes albicollis (Vieillot, 1818)	52.6						
	Xiphorhynchus fuscus (Vieillot, 1818)	78.9					1	1
	Campylorhamphus falcularius (Vieillot, 1822)	10.5					1	1
	Lepidocolaptes squamatus (Lichtenstein, 1822)	36.8					1	1
Xenopidae Bonaparte, 1854								
	Xenops minutus (Sparrman, 1788)	5.3						
	Xenops rutilans Temminck, 1821	10.5						
Furnariidae Gray, 1840								
	Furnarius rufus (Gmelin, 1788)	21.1						
	Lochmias nematura (Lichtenstein, 1823)	94.7						
	Anabazenops fuscus (Vieillot, 1816)	52.6					1	1
	Cichlocolaptes leucophrus (Jardine & Selby, 1830)	10.5		EN	EN		1	1
	Anabacerthia lichtensteini (Cabanis & Heine, 1859)	26.3					1	1
	Dendroma rufa (Vieillot, 1818)	10.5	FNJV 50033					
	Syndactyla rufosuperciliata (Lafresnaye, 1832)	10.5	FNJV 50050					
	Phacellodomus rufifrons (Wied, 1821)	15.8						
	Asthenes moreirae (Miranda-Ribeiro, 1906)	10.5		CR			1	1
	Cranioleuca pallida (Wied, 1831)	26.3	FNJV 50022				1	1

Family	Species	F.O. (%)	Voucher	Status			Endem.	E.R.D.
				ES	MG	BR		
	Synallaxis cinerascens Temminck, 1823	21.1						
	Synallaxis ruficapilla Vieillot, 1819	78.9	FNJV 50049				1	1
	Synallaxis spixi Sclater, 1856	73.7						
Pipridae Rafinesque, 1815								
	Ilicura militaris (Shaw & Nodder, 1809)	57.9	FNJV 50019, 50020				1	1
	Chiroxiphia caudata (Shaw & Nodder, 1793)	94.7					1	1
Cotingidae Bonaparte, 1849								
	Carpornis cucullata (Swainson, 1821)	21.1		VU	EN		1	1
	Procnias nudicollis (Vieillot, 1817)	21.1	FNJV 50039, 50040	VU	EN		1	1
Tityridae Gray, 1840								
	Schiffornis virescens (Lafresnaye, 1838)	21.1					1	1
	Pachyramphus viridis (Vieillot, 1816)	5.3						
	Pachyramphus castaneus (Jardine & Selby, 1827)	10.5						
	Pachyramphus polychopterus (Vieillot, 1818)	15.8						
Onychorhynchidae Tello, Moyle, Marchese & Cracraft, 2009								
	Myiobius atricaudus Lawrence, 1863	5.3						
Platyrinchidae Bonaparte, 1854								
	Platyrinchus mystaceus Vieillot, 1818	94.7	FNJV 50034, 50035					
Rhynchocyclidae Berlepsch, 1907								
	Mionectes rufiventris Cabanis, 1846	78.9					1	1
	Leptopogon amaurocephalus Tschudi, 1846	36.8						
	Phylloscartes ventralis (Temminck, 1824)	21.1						
	Tolmomyias sulphurescens (Spix, 1825)	84.2	FNJV 50053					
	Tolmomyias poliocephalus (Taczanowski, 1884)	10.5						
	Todirostrum poliocephalum (Wied, 1831)	26.3					1	1
	Todirostrum cinereum (Linnaeus, 1766)	5.3						
	Poecilotriccus plumbeiceps (Lafresnaye, 1846)	73.7	FNJV 50036					
	Hemitriccus diops (Temminck, 1822)	21.1					1	1
Tyrannidae Vigors, 1825								
	Hirundinea ferruginea (Gmelin, 1788)	31.6						
	Tyranniscus burmeisteri (Cabanis & Heine, 1859)	10.5						
	Camptostoma obsoletum (Temminck, 1824)	78.9						
	Elaenia flavogaster (Thunberg, 1822)	26.3						
	Elaenia obscura (d'Orbigny & Lafresnaye, 1837)	21.1						
	Myiopagis caniceps (Swainson, 1835)	5.3						
	Capsiempis flaveola (Lichtenstein, 1823)	21.1						
	Phyllomyias virescens (Temminck, 1824)	10.5					1	1
	Serpophaga subcristata (Vieillot, 1817)	10.5						
	Attila rufus (Vieillot, 1819)	36.8	FNJV 50017				1	1
	Legatus leucophaius (Vieillot, 1818)	5.3						
	Myiarchus ferox (Gmelin, 1789)	36.8						
	Myiarchus tyrannulus (Statius Müller, 1776)	5.3						
	Sirystes sibilator (Vieillot, 1818)	47.4						
	Pitangus sulphuratus (Linnaeus, 1766)	52.6						
	Myiodynastes maculatus (Statius Müller, 1776)	15.8						
	Megarynchus pitangua (Linnaeus, 1766)	26.3						
	Myiozetetes similis (Spix, 1825)	26.3						
	Tyrannus melancholicus Vieillot, 1819	42.1						
	Empidonomus varius (Vieillot, 1818)	5.3						
	Colonia colonus (Vieillot, 1818)	36.8						
	Fluvicola nengeta (Linnaeus, 1766)	21.1						
	Muscipipra vetula (Lichtenstein, 1823)	31.6					1	1
	Myiophobus fasciatus (Statius Müller, 1776)	42.1						
	Cnemotriccus fuscatus (Wied, 1831)	21.1						
	Lathrotriccus euleri (Cabanis, 1868)	47.4	FNJV 50029					
	Knipolegus lophotes Boie, 1828	5.3						
	Knipolegus nigerrimus (Vieillot, 1818)	52.6					1	1
	Knipolegus cyanirostris (Vieillot, 1818)	52.6						
Vireonidae Swainson, 1837								
	Cyclarhis gujanensis (Gmelin, 1789)	100						
	Hylophilus poicilotis Temminck, 1822	78.9					1	1

Family	Species	F.O. (%)	Voucher	Status			Endem.	E.R.D.
				ES	MG	BR		
Hirundinidae Rafinesque, 1815								
	Pygochelidon cyanoleuca (Vieillot, 1817)	57.9						
	Progne chalybea (Gmelin, 1789)	10.5						
Troglodytidae Swainson, 1831								
	Troglodytes musculus Naumann, 1823	73.7						
Turdidae Rafinesque, 1815								
	Turdus flavipes Vieillot, 1818	36.8	FNJV 50055					
	Turdus leucomelas Vieillot, 1818	84.2						
	Turdus rufiventris Vieillot, 1818	100						
	Turdus amaurochalinus Cabanis, 1850	36.8						
	Turdus subalaris (Seebohm, 1887)	10.5					1	1
	Turdus albicollis Vieillot, 1818	31.6						
Mimidae Bonaparte, 1853								
	Mimus saturninus (Lichtenstein, 1823)	15.8	FNJV 50032					
Fringillidae Leach, 1820								
	Euphonia chlorotica (Linnaeus, 1766)	5.3						
Passerellidae Cabanis & Heine, 1850								
	Ammodramus humeralis (Bosc, 1792)	5.3						
	Arremon taciturnus (Hermann, 1783)	5.3						
	Zonotrichia capensis (Statius Müller, 1776)	100	FNJV 50056, 50057					
Icteridae Vigors, 1825								
	Cacicus haemorrhous (Linnaeus, 1766)	5.3						
	Molothrus bonariensis (Gmelin, 1789)	10.5						
	Gnorimopsar chopi (Vieillot, 1819)	10.5						
Parulidae Wetmore, Friedmann, Lincoln, Miller, Peters, van Rossem, Van Tyne & Zimmer 1947								
	Basileuterus culicivorus (Deppe, 1830)	94.7						
Cardinalidae Ridgway, 1901								
	Piranga flava (Vieillot, 1822)	5.3						
	Habia rubica (Vieillot, 1817)	5.3						
Thraupidae Cabanis, 1847								
	Orchesticus abeillei (Lesson, 1839)	10.5					1	1
	Hemithraupis ruficapilla (Vieillot, 1818)	94.7	FNJV 50028				1	1
	Dacnis cayana (Linnaeus, 1766)	47.5						
	Saltator similis d'Orbigny & Lafresnaye, 1837	73.7	FNJV 50043	VU				
	Coereba flaveola (Linnaeus, 1758)	36.8						
	Volatinia jacarina (Linnaeus, 1766)	5.3						
	Trichothraupis melanops (Vieillot, 1818)	84.2						
	Coryphospingus pileatus (Wied, 1821)	5.3						
	Tachyphonus coronatus (Vieillot, 1822)	89.5					1	1
	Sporophila nigricollis (Vieillot, 1823)	5.3						
	Sporophila caerulescens (Vieillot, 1823)	36.8	FNJV 50045					
	Thlypopsis sordida (d'Orbigny & Lafresnaye, 1837)	5.3						
	Microspingus lateralis (Nordmann, 1835)	73.7	FNJV 50037, 50038	VU			1	
	Sicalis flaveola (Linnaeus, 1766)	21.1						
	Haplospiza unicolor Cabanis, 1851	10.5					1	1
	Pipraeidea melanonota (Vieillot, 1819)	5.3						
	Stephanophorus diadematus (Temminck, 1823)	52.6	FNJV 50046, 50047	VU				
	Cissopis leverianus (Gmelin, 1788)	10.5						
	Schistochlamys ruficapillus (Vieillot, 1817)	26.3						
	Thraupis sayaca (Linnaeus, 1766)	63.2						
	Thraupis cyanoptera (Vieillot, 1817)	5.3					1	1
	Thraupis palmarum (Wied, 1821)	21.1						
	Thraupis ornata (Sparrman, 1789)	78.9					1	1
	Stilpinia cayana (Linnaeus, 1766)	78.9						
	Tangara cyanoventris (Vieillot, 1819)	94.7					1	1
	Tangara desmaresti (Vieillot, 1819)	73.7	FNJV 50051				1	1

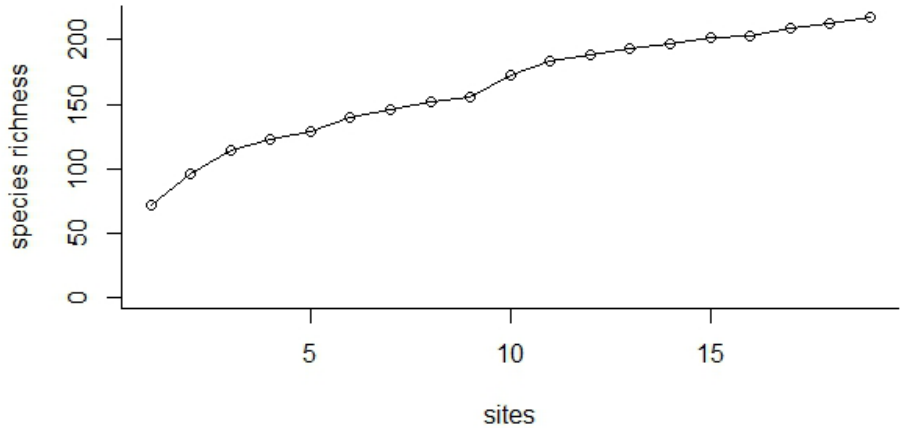

Figure 2. Species accumulation curve of bird species in PARNA Caparaó, Atlantic Forest, southeastern Brazil.

Tyrannidae ($n = 29$) and Thraupidae ($n = 26$). Trochilidae ($n = 16$) was the richest family among the non-Passerines. The species accumulation curve (Fig. 2) did not stabilize, showing that more survey work is needed to have a more complete list of the park's avifauna.

The species with occurrence frequency above 50% total 61, of which 13 species were recorded in practically all visits (with 94.7% and 100% FO): *Crypturellus obsoletus*, *Ramphastos dicolorus*, *Lochmias nematura*, *Chamaeza meruloides*, *Sittasomus griseicapillus*, *Chiroxiphia caudata*, *Platyrinchus mystaceus*, *Cyclarhis gujanensis*, *Turdus rufiventris*, *Zonotrichia capensis*, *Basileuterus culicivorus*, *Tangara cyanoventris*, and *Hemithraupis ruficapilla.* Most species were recorded only a few times in the park (Table 3).

Annotated list. Our list contains species that are newly recorded from the PARNA Caparaó and some other species we found that deserve comment. We did not collect any specimens and most species were heard but not seen, which made it difficult or impossible to identify the sex. We made available all information we could acquire in the field. Whenever relevant, we highlighted the status of endemism and threat level faced by the bird species commented.

Species newly recorded from Caparao National Park

Tinamiformes, Tinamidae

Crypturellus tataupa (Temminck, 1815)

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′42″S, 041°50′57″W; vocalizing, 1,400–1,500 m; 09.VI.2018; obs.; 1 specimen, sex indet.

Table 3. Occurrence frequency of the species recorded in PARNA Caparaó, Brazil.

Occurrence frequency	Number of species
Frequency of 75% ≤ x ≤ 100%	29
Frequency of 50% ≤ x < 75%	32
Frequency of 25% ≤ x < 50%	38
Frequency of 1% ≤ x < 25%	117

This species was less common (FO = 5.3%) than its congener *C. obsoletus* (FO = 94.7%), both recorded in the park.

Identification. This species was detected by its voice, which is a series of loud whistles that rise then descend in pitch and volume, accelerating towards the end (Erize et al. 2006).

Apodiformes, Trochilidae

Campylopterus largipennis (Boddaert, 1783)

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′22″S, 041°50′28″W; recorded along Jipe trail (trilha do Jipe), 1,700–1,800 m; 28.X.2013; obs.; 1 specimen, sex indet.

Currently, the eastern most distribution of this species in Brazil consists of isolated populations in Cadeia do Espinhaço, Minas Gerais (Sick 2001; Züchner et al. 2020). There is an alleged historical record of this species, collected by Natterer, in the state of São Paulo (von Pelzeln 1871; Paynter and Traylor 1991). Our new record of this species from the park should be better investigated. Additional studies on the distribution of this species are needed.

Identification. This species is similar to the female of *Thalurania glaucopis*, but *C. largipennis* is larger, with a larger bill, gray rather than white underparts, and with an accentuated white post-ocular spot.

Thalurania furcata (Gmelin, 1788)

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′21″S, 041°50′54″W; 1,602 m; 15.XII.2012; obs.; 1 ♂ • same locality; 20°24′25″S, 041°50′51″W; 1,657 m; 06.VI.2014; obs.; 1 ♂.

This species has an extremely large geographic range in Brazil, with its southern limits in Serra do Brigadeiro, Minas Gerais. However, the range include Espírito Santo while the species is migrating (Sick 2001), and a vagrant individual was recorded by Oniki (1996) in northern Espírito Santo. *Thalurania furcata* was recently recorded in Manhuaçu, Minas Gerais (Mendes et al. 2017), which is part of the Caparaó complex.

Identification. A male individual was observed on two

Figure 3. Birds recorded in PARNA Caparaó. **A.** *Basileuterus culicivorus*. **B.** *Campephilus robustus* (male). **C.** *Campiloramphus trochilirostris*. **D.** *Chamaeza meruloides*. **E.** *Chiroxiphia caudata* (male). **F.** *Colonia colonus* (male). **G.** *Clytolaema rubricauda* (female). **H.** *Conopophaga lineata* (male). **I.** *Dendrocolaptes platyrostris*. **J.** *Glaucidium brasilianus*. **K.** *Haplospiza unicolor* (male). **L.** *Harpagus diodon*.

occasions, distinguished by its brilliant green throat and purple-blue underparts (Erize et al. 2006).

***Heliomaster squamosus* (Temminck, 1823)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′34″S, 041°50′56″W; 1,555 m; 09.VI.2018; obs.; 1 ♂.

Identification. A male individual was observed, identified by its dark, bronzy-green body, with shiny blue cap and a purple-red throat (Erize et al. 2006).

Cathartiformes, Cathartidae

***Cathartes burrovianus* Cassin, 1845**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′0.5″S, 041°49′37″W; 1,283 m; 20.IX.2013; obs.; 1 specimen, sex indet.

Identification. Recorded once, during overflight. This species is easily distinguished by its yellowish, bare head (Erize et al. 2006).

Accipitriformes, Accipitridae

***Buteo albonotatus* Kaup, 1847**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′17″S, 041°51′07″W; 1,236 m; 09.VI.2018; obs.; 1 specimen, sex indet.

Identification. An individual was observed flying over the park, identified by its all-black body, with two white bands on the tail (Erize et al. 2006).

Strigiformes, Strigidae

***Glaucidium brasilianum* (Gmelin, 1788)**

Figure 3J

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′12″S, 041°51′06″W; 1,267 m; 09.VI.2018; obs.; 1 specimen, sex indet.

Identification. This species was identified by its voice, which consists of a long series of short whistles (Erize et al. 2006).

Coraciformes, Momotidae

***Baryphthengus ruficapillus* (Vieillot, 1818)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′10″S, 041°50′36″W; 1,400 m; 29.VI.2013; obs.; 1 specimen, sex indet.

Baryphthengus ruficapillus is relatively common, occurring in several protected areas (Ridgely et al. 2015; Snow and Kirwan 2020), but we had only one encounter with it. This species is Endangered in Espírito Santo, and although our record was in Minas Gerais, the park comprises a forested area in both states.

Identification. It was observed during sunrise, perched on a signboard in Vale Verde, near the Caparaó River. It is a medium-sized bird, which is easily identified by its dark face-mask, rufous cap, and cinnamon-rufous ventral band (Erize et al. 2006).

Piciformes, Picidae

***Piculus polyzonus* (Valenciennes, 1826)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′42″S, 041°50′57″W; along Jipe trail (trilha do Jipe), 1,470 m; 06.VI.2014; obs.; 1 ♂.

This Atlantic Forest endemic species is Endangered in Brazil (ICMBio 2018). This species was considered conspecific with *P. chrysochloros* until recently. Its distribution is poorly known, as there are only a few field records, mostly from preserved forests in conservation units (Del-Rio et al. 2013; ICMBio 2018). A record of this species was reported by de Paula and Carvalho (2007) in the adjacent areas of the park. Our record confirms the occurrence of this species within the park.

Identification. The upperparts are olive, the underparts yellow-barred olive, and the cap and malar are red. This species is similar to *P. aurulentus*, which also occurs in the park. However, *P. polyzonus* was identified by having only one yellow line on its face (Sick 2001; Erize et al. 2006).

Passeriformes, Thamnophilidae

***Herpsilochmus rufimarginatus* (Temminck, 1822)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′19″S, 041°49′16″W; 1,697 m; 13.V.2013; obs.; 1 specimen, sex indet; • same locality; 14.01.2014; obs.; 1 specimen, sex indet.

Identification. Identified by its voice, a fast, descending, accelerating series of gravelly nasal notes (Ridgely and Tudor 2009).

Rhinocryptidae

***Eleoscytalopus indigoticus* (Wied, 1831)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′31″S, 041°50′37″W; 1,704 m; 12.XII.2012; 2 specimens, sex indet. • same locality; 20°24′30″S, 041°50′56″W; 1,551 m; 04.VI.2017; obs.; 1 specimen, sex indet.

Recorded in an ecotone between montane semideciduous forest and Campos de Altitude vegetation. This species is endemic to the Atlantic Forest (Vale et al. 2018) and is Endangered in Espírito Santo and Near Threatened globally (IUCN 2020). It was recorded in sympatry with *Scytalopus speluncae* at 1,600–1,800 m.

Identification. This species was identified by its call, a strong froglike and guttural ascending trill (Sick 2001; Ridgely and Tudor 2009).

Xenopidae

***Xenops minutus* (Sparrman, 1788)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′55″S, 041°50′59″W; 1,400 m; 16.X.2012; obs.; 1 specimen, sex indet.

Identification. This species was identified by its olive-brown body, pale buff superciliary, white malar stripe, and strongly upturned lower mandible. *Xenops minutus* is less streaked than *X. rutilans* (Ridgely and Tudor 2009), which also occurs in the park.

Rhynchocyclidae

***Tolmomyias poliocephalus* (Taczanowski, 1884)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′09″S, 41°50′52″W; 1,314 m; 11.V.2015; obs.; 1 specimen, sex indet.

Identification. This species is very similar to *T. sulphurescens*, which is fairly common in the park. *Tolmomyias poliocephalus* can be distinguished by being slightly smaller and lacking the dark patch on ear-coverts (Ridgely and Tudor 2009). The vocalization was compared with our song database.

Tyrannidae

***Legatus leucophaius* (Vieillot, 1818)**

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′39″S, 041°44′12″W; 1,113 m; 19.IX.2012; obs.; 1 specimen, sex indet.

Identification. This species was observed and heard. It was identified by its small size, stubby black bill, semiconcealed yellow coronal patch, blackish face with long whitish superciliary, whitish malar area, dusky-brown streaked breast, and pale-yellow belly. Vocalization consists of a short series of strident shrills, repeated tirelessly (Sick 2021; Ridgely and Tudor 2009).

***Myiarchus tyrannulus* (Statius Müller, 1776)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó , PARNA Caparaó; 20°24′56″S, 041°50′59″W; 1,396 m; 09.VI.2018; obs.; 1 specimen, sex indet.

Identification. This species was identified by its vocalization, which is a rushed, rhythmic verse with the last note lower (Sick 2001).

***Cnemotriccus fuscatus* (Wied, 1831)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′17″S, 41°51′07″W; 1,256 m; 11.V.2015; obs.; 1 specimen, sex indet. - **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′24″S, 41°44′29″W; 1,139 m; 19.VIII.2012; obs.; 1 specimen, sex indet. • same locality; 20°29′30″S, 41°44′11″W; 1,041 m; 19.IX.2012, obs.; 1 specimen, sex indet. • same locality; 20°29′27″S, 41°44′16″W; 1,063 m; 21.IV.2013; obs.; 1 specimen, sex indet.

Identification. This species was identified by its voice, mostly a series of fast, gravelly, and scratchy notes or a more piercing call at long intervals (Rigdely and Tudor 2009).

Figure 4. Birds recorded in PARNA Caparaó. **A.** *Hemitriccus diops*. **B.** *Herpethoteres cachinnans*. **C.** *Hilophilus poicilotis*. **D.** *Hirundinea ferruginea*. **E.** *Illicura militaris* (male). **F.** *Knipolegus nigerrimus* (female). **G.** *Muscipipra vetula*. **H.** *Leptopogon amaurocephalus*. **I.** *Knipolegus cyanirostris* (male). **J.** *Lepdocolaptes squamatus*. **K.** *Lochmias nematura*. **L.** *Mionectes rufiventris*.

Passerellidae

***Arremon taciturnus* (Hermann, 1783)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′03″S, 41°51′06″W; 1,338 m; 06.VI.2014; obs.; 1 ♂.

Identification. A male individual was observed and identified by its all-black bill, black head with grey coronal streak, white superciliary, and a black pectoral collar. It resembles *A. semitorquatus* which also occurs in the park, but differs from *A. taciturnus* by having a yellow lower mandible and an incomplete pectoral collar in males (Ridgely and Tudor 2009; Ridgely et al. 2015).

Threatened and noteworthy species

Galliformes, Odontophoridae

***Odontophorus capueira* (Spix, 1825)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′17″S, 041°51′07″W; 04.VI.2017; obs.; 1 specimen, sex indet.

This Atlantic Forest endemic species is Endangered in both Minas Gerais and Espírito Santo. *Odontophorus capueira* has a wide distributional range, but populations are currently much reduced due to deforestation and hunting, and this species is now mainly restricted to protected areas of coastal Atlantic Forest fragments (Sick 2001; Ridgely et al. 2015; Carroll and Kirwan 2019). Pairs sing in duet during the mating season (Sick 2001).

Identification. This species was identified by its vocalization, a vigorous sequence of disyllabic "uru-uru-uru-uru" which can last for a few minutes (Sick 2001; Ridgely et al. 2015).

Caprimulgiformes, Caprimulgidae

***Hydropsalis torquata* (Gmelin, 1789)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′32″S, 041°49′18″W; 08.V.2014; obs.; 1 ♂.

Identification. This species has a long tail which is almost twice the length of its body and a rufous nuchal collar (Erize et al. 2006).

Apodiformes, Apodidae

***Chaetura meridionalis* Hellmayr, 1907**

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′30″S, 041°44′11″W; 23.XI.2013; obs.; 1 specimen, sex indet.

Identification. Tail short and square with short barbs protruding. Body dark, smoky brown with pale smoky grey rump and tail coverts contrasting. Throat dirty whitish (Erize et al. 2006).

Apodiformes, Trochilidae

***Chrysuronia versicolor* (Vieillot, 1818)**

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′27″S, 041°44′16″W; 19.IX.2012; obs.; 1 specimen, sex indet.

There is a specimen collected in the Caparaó National

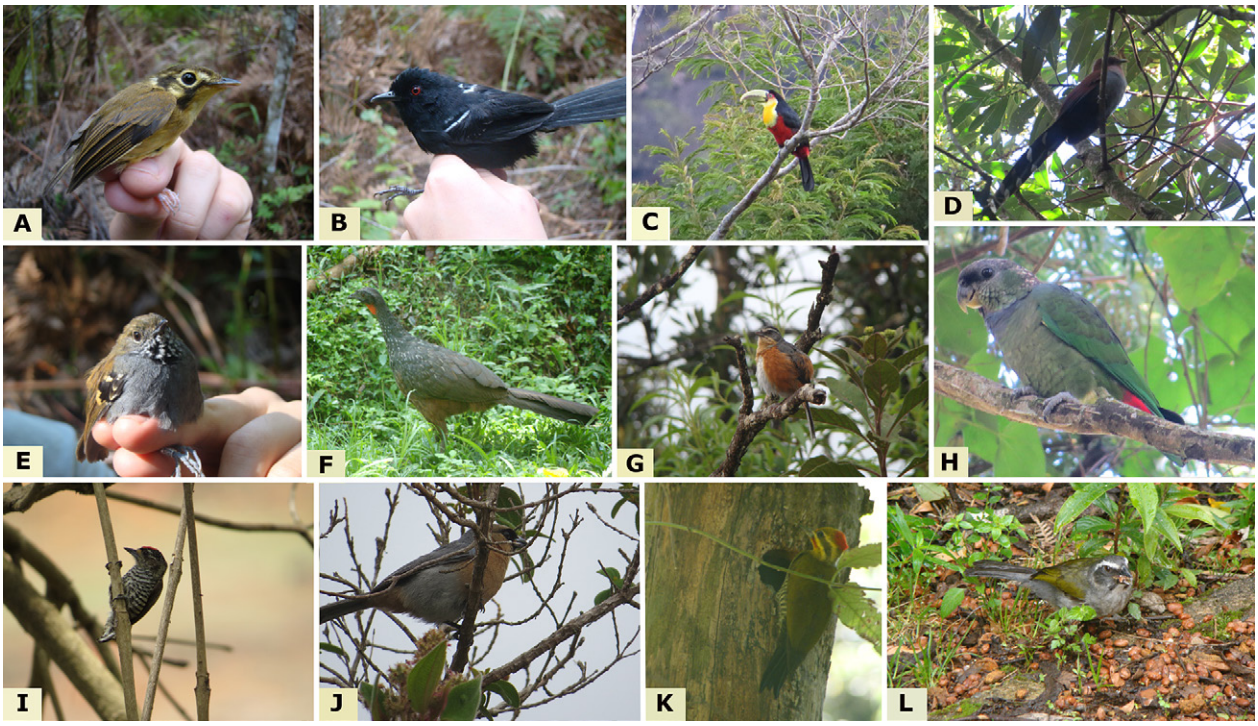

Figure 5. Birds recorded in PARNA Caparaó. **A.** *Platyrhincus mystaceus*. **B.** *Pyriglena leucoptera* (male). **C.** *Ramphastus dicolorus*. **D.** *Piaya cayana*. **E.** *Rhopia gularis* (male) **F.** *Penelope obscura*. **G.** *Microspingus laterais*. **H.** *Pionus maximiliani*. **I.** *Picumnus cirratus* (male). **J.** *Schistoclamys ruficapillus*. **K.** *Piculus aurulentus* (female). **L.** *Saltator similis*.

Park at the National Museum (MNRJ 48473), without collection date information.

Identification. Upperparts bronzy green. Tail brownish bronzy olive with a dark brown subterminal band. White belly and bib white, speckled with emerald green. Bill with a rosy mandible (Erize et al. 2006; Ridgely et al. 2015).

***Chionomesa fimbriata* (Gmelin, 1788)**

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′25″S, 041°44′21″W;04. VIII.2012; obs.; 1 ♂.

Identification. Body brilliant green with a shiny, emerald-green bib. Belly and undertail coverts white. Bill red (Erize et al. 2006).

***Chionomesa lactea* (Lesson, 1832)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′54″S, 041°49′11″W; 1,528 m; 20.IX.2013; obs.; 1 specimen, sex indet. • Santa Marta; 23.XI.2013; obs.; 1 specimen, sex indet.

There is a specimen collected in 1929 by Kaempfer at "Fazendinha" at 1,660 m in the Caparaó Mountains (AMNH 316601). Since then, there were no other records of this species in the park until now, more than 80 years later.

Identification. Upperparts brilliant dark green with a bronzy sheen. Belly dark green, with central white strip. Bib brilliant violet-blue. Bill with a reddish mandible (Sick 2001; Erize et al. 2006; Ridgely et al. 2015).

***Calliphlox amethystina* (Boddaert, 1783)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′42″S, 041°50′57″W; 19.VI. 2014; obs.; 1 ♀.

Identification. Tail forked, with outer pairs pointed. Bib shiny purple-red. Collar white. Females have a buff throat, spotted with green, and green and buff collars, with cinnamon rufous underparts (Erize et al. 2006).

Accipitriformes, Accipitridae

***Harpagus diodon* (Temminck, 1823)**

Figure 3L

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′31″S, 041°44′06″W; 15.II.2014; obs.; 1 specimen, sex indet.

Identification. Head blackish and throat white with a blackish midline. Upperparts grayish black and underparts pale grey. Tail with four blackish bars. Underwings and thighs chestnut rufous (Erize et al. 2006).

Galbuliformes, Bucconidae

***Nystalus chacuru* (Vieillot, 1816)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°29′25″S, 041°44′21″W; 15.XII. 2012; obs.; 1 specimen, sex indet.

This species is very common and widespread (Ridgely et al. 2015; WikiAves 2021), but records from systematic surveys in Espírito Santo are scarce. Although our record was in Minas Gerais, the park comprises a forested area in both states.

Identification. Bill large, robust, and bright orange-red. Face black and auricular white. Underparts buffy whitish and upperparts brownish rufous.

Piciformes, Rhamphastidae

***Pteroglossus bailloni* (Vieillot, 1819)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó (Vale Verde); 20°25′08″S, 041°50′52″W; 1,400 m; 12.V.2012; obs.; a group of individuals. – **Espírito Santo** • Santa Marta, PARNA Caparaó; 1,111 m; 19.XI.2012; obs.; 1 specimen, sex indet.

This Atlantic Forest endemic species is Vulnerable in Minas Gerais and globally.

Identification. This species is easily distinguished by its yellowish body, greenish-yellow bill with chestnut-red base and a pinkish-orange bare skin around the eye (Sick 2001; Erize et al. 2006).

Piciformes, Picidae

***Piculus aurulentus* (Temminck, 1821)**
Figure 5

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′25″S, 041°49′17″W; 1,600–1,700 m; 26.X.2012; obs.; 1 ♂ • same locality; 20.IX.2013; obs.; 1 ♂ • same locality; 25.I.2014; obs.; 1 ♂. – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′42″S, 041°50′57″W; 1,450 m–; 15.XII.2012; obs.; 1 ♂ • same locality; 28.X.2013; obs.; 1 ♂ • same locality; 20°24′31″S, 041°50′37″W; 1,700 m; 08.III.2014; obs.; 1 ♂ • same locality; 11.05.2015; obs.; 1 ♂ and 1 ♀.

Identification. Forehead, crown, and malar streak red. Face with two yellow lines, distinguishing it from *P. polyzonus* (Erize et al. 2006).

Falconiformes, Falconidae

***Micrastur semitorquatus* (Vieillot, 1817)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′27″S, 041°49′18″W; 25.I. 2014; obs.; 1 specimen, sex indet.

Identification. Cap hind-cheek, upperparts, and wings black. Rest of cheek, collar, and underparts white, rufous or black. Tail with three white bands and tip white. The voice is a lengthening series of "cows" after a stuttering start (Erize et al. 2006).

Psittaciformes, Psittacidae

***Primolius maracana* (Vieillot, 1816)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′54″S, 041°49′11″W; 26.X.2012; obs.; 2 specimens, sex indet. • same locality; 26.V.2013; obs.; 2 specimens, sex indet. • same locality; 19.VI.2014; obs.; 2 specimens, sex indet. – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′09″S, 041°50′46″W; 29.VI.2013; obs.; 3 specimens, sex indet. • same locality; 08.III.2014; obs.; 2 specimens, sex indet. • same locality; 11.V.2015; obs.; 2 specimens, sex indet. • same locality; 17.VI.2016; obs.; 2 specimens, sex indet. • same locality; 04.VI.2017; obs.; 2 specimens, sex indet. • same locality; 09.VI.2018; obs.; 2 specimens, sex indet.

Identification. Face barem creamy white, forehead orange-red and blackish blue, and crown and part of the cheek bluish (Erize et al. 2006).

***Amazona vinacea* (Kuhl, 1820)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′03″S, 041°51′06″W; 29.VI.2013; obs.; group of individuals, sex indet. • same locality; 28.X.2013; obs.; 2 specimens, sex indet. • same locality; 06.VI.2014; obs.; group of individuals, sex indet. • same locality; 11.V.2015; obs.; group of individuals, sex indet. • same locality; 04.VI.2017; obs.; 2 specimens, sex indet. • same locality; 09.VI.2018; obs.; 2 specimens, sex indet. – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′09″S, 041°49′17″W; 1,700 m; 20.IX.2013; obs.; 2 specimens, sex indet.

This Atlantic Forest endemic species is Endangered in Espírito Santo, Vulnerable in Minas Gerais, and Endangered in Brazil and globally (IUCN 2020).

Identification. This species was identified by its voice, which differs from *A. farinosa*, which also occurs in the park.

***Amazona farinosa* (Boddaert, 1783)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°30′02″S, 041°49′09″W; 19.VI. 2014; obs.; at least 2 specimens, sex indet.

The group vocalization was heard during flight, at about 1,700 m, but we cannot specify their elevation as we did not delimit a maximum radius for detection. This species was recorded during point-count in an ecotone between upper montane rainforest and Campos de Altitude vegetation.

This species is threatened due to illegal capture and deforestation, and is considered Critically Endangered in Minas Gerais, Endangered in Espírito Santo, and Near Threatened globally. Records of *A. farinosa* are concentrated further north in Espirito Santo (e.g., Srbek-Araujo et al. 2012; Faria et al. 2016). In Minas Gerais, this species is already considered extinct in some regions (Ribon et al. 2004). Although it is usually found in the Atlantic Forest lowlands, it can reach higher altitudes (Donegan 2012). Moreover, there are records of this species for the Caparaó Mountains, at Bananal (ca. 800–900 m), municipality of Espera Feliz, Minas Gerais (MNRJ 3905). There is also an audio recording of *A. farinosa* in the Reserva Biológica Augusto Ruschi (780–1,050 m), which is a mountainous part of the municipality of Santa Teresa, Espírito Santo (FNJV 9156).

Identification. The group was identified by its characteristic low-pitched and melodious call, usually a repeated "tchóp, tchóp, tchóp" (Sick 2001). These calls differ from

those of *A. vinacea*, which also occurs in the park.

Passeriformes, Thamnophilidae

***Drymophila ferruginea* (Temminck, 1822)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′30″S, 041°50′56″W; above 1,500 m; 15.XII.2012; obs.; 1 specimen, sex indet. • same locality; 29.VI.2013; obs.; 1 specimen, sex indet. • same locality; 06.VI.2014; obs.; 1 specimen, sex indet. • same locality; 11.V.2015; obs.; 1 specimen, sex indet. • same locality; 17.VI.2016; obs.; 1 specimen, sex indet.

Identification. Males have a black crown, white superciliary, and a stripe below the eye. Body rufescent brown, wings and tail black, tail tipped with white. Females have a similar pattern but body is paler and crown is streaked. The song is simple and less snarly, distinct from the other *Drymophilas* species.

***Drymophila genei* (Filippi, 1847)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′42″S, 041°50′57″W; above 1,400 m; 15.XII.2012; obs.; 2 specimens, sex indet. • same locality; 29.VI.2013; obs.; 1 specimen, sex indet. • same locality; 28.X.2013; obs.; 2 specimens, sex indet. • same locality; 08.III.2014; obs.; 2 specimens, sex indet. • same locality; 06.VI.2014; obs.; 2 specimens, sex indet. • same locality; 11.V.2015; obs.; 1 specimen, sex indet. • same locality; 17.VI.2016; obs.; 1 specimen, sex indet. • same locality; 04.VI.2017; obs.; 1 specimen, sex indet. • same locality; 09.VI.2018; obs.; 2 specimens, sex indet. – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20° 29′32″S, 041°49′18″W; above 1,600 m; 26.X.2012; obs.; 12 specimens (3 ♀, 4 ♂, 8 sex indet) • same locality; 26.V. 2013; obs.; 7 specimens, sex indet. • same locality; 20.IX. 2013; obs.; 8 specimens (2 ♂, 2 ♀, 6 sex indet) • same locality; 25.I.2014; obs.; 8 specimens (1 ♂, 7 sex indet).

This Atlantic Forest endemic species is Endangered in Espírito Santo (Chaves et al. 2019) and Vulnerable in Minas Gerais (COPAM 2010). *Drymophila genei* was usually recorded in association with bamboo or near a road. Although fairly common in the park, *D. genei* is strictly montane, so it has a small range and specialized habitat requirements (Sick 2001; Zimmer and Isler 2020). It has also been recorded in sympatry with *D. ochropyga* in Alto Caparaó and Santa Marta, between 1,500 and 1,650 m.

Identification. This species was observed and heard. It was identified by its black crown and white superciliary. Unlike its congeners, it has rufous wings and tail. Voice is a snarling level pitch (Ridgely and Tudor 2009).

***Drymophila ochropyga* (Hellmayr, 1906)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′09″S, 041°50′52″W; above 1,300 m; 15.XII.2012; obs.; 2 specimens, sex indet. • same locality; 29.VI.2013; obs.; 2 specimens, sex indet. • same locality; 28.X.2013; obs.; 2 specimens, sex indet. • same locality; 06.VI.2014; obs.; 2 specimens, sex indet. • same locality; 11.V.2015; obs.; 1 specimen, sex indet. • same locality; 17.VI.2016; obs.; 1 specimen, sex indet. • same locality; 04.VI.2017; obs.; 1 specimen, sex indet. • same locality; 09.VI.2018; obs.; 2 specimens, sex indet. – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′37″S, 041°49′19″W; at 1,581 m; 20.IX.2013; obs.; 1 specimen, sex indet. • Santa Marta, PARNA Caparaó; 20°29′27″S, 041°44′46″W; above 1,200 m; 19.VIII.2012; obs.; 1 specimen, sex indet.

Identification. Males have a black crown, white superciliary, and rufous lower underparts. Throat and breast are streaked with black and white. Tail is blackish, tipped white. Females have a similar pattern, but crown is streaked and underparts are buff. The song is a two-note nasal snarl (Ridgely and Tudor 2009).

Conopophagidae

***Conopophaga melanops* (Vieillot, 1818)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′06″S, 041°49′26″W; 1,864 m; 26.V.2013; obs.; 1 ♀.

Identification. Male underparts are mainly grey, with white throat. Upperparts are brown, with brownish-orange wing coverts. Crown bright orange-rufous and face black. Female resembles *C. lineata*. The song is a fast trill lasting 5–8 seconds (Ridgely and Tudor 2009).

Grallariidae

***Grallaria varia* (Boddaert, 1783)**

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′31″S, 041°44′06″W; 971 m; 15.II.2014; obs.; 1 specimen, sex indet.

Grallaria varia is Critically Endangered in Minas Gerais, Endangered in Espírito Santo, and Vulnerable in Brazil (ICMBio 2018). The subspecies *G. v. intercedens* Berlepsch & Leverkuhn, 1890 is Vulnerable in Brazil, but the attribution of PARNA Caparaó's population to this subspecies requires confirmation (ICMBio 2018).

Identification. This species was identified by its voice, a series of deep, hollow notes which accelerate and increase in volume (Sick 2001; Ridgely and Tudor 2009).

Dendrocolaptidae

***Dendrocincla turdina* (Lichtenstein, 1820)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′25″S, 041°50′42″W; above 1,600 m; 09.VI. 2018; obs.; 1 specimen, sex indet. – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′32″S, 041°49′18″W; above 1,600 m; 26.X.2012; obs.; 2 specimens, sex indet. • same locality; 26.V.2013; obs.; 3 specimens, sex indet. • same locality; 20.IX.2013; obs.; 2 specimens, sex indet. • same locality; 19.VI.2014; obs.; 1 specimens, sex indet. • Santa Marta, PARNA Caparaó; 20°29′30″S, 041°44′11″W; above 1,000 m; 19.VIII.2012;

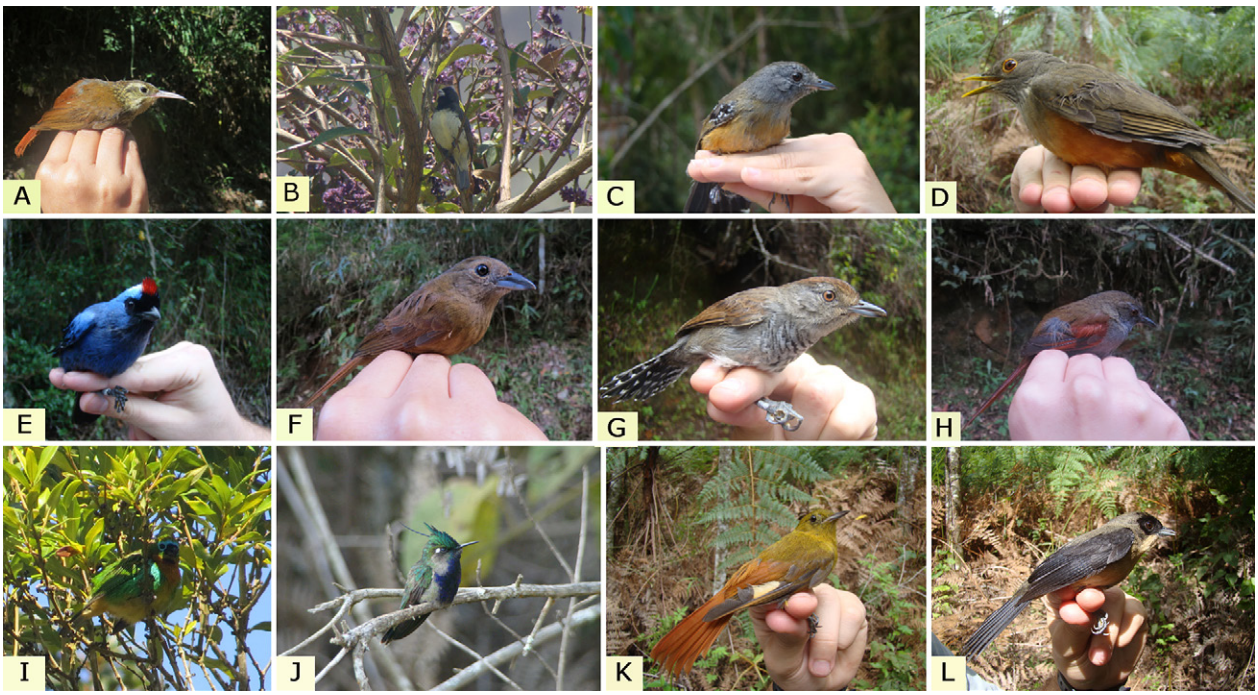

Figure 6. Birds recorded in PARNA Caparaó. **A.** *Xiphorhynchus fuscus*. **B.** *Sporophila nigricolis* (male). **C.** *Thamnophilus caerulescens* (female). **D.** *Turdus rufiventris*. **E.** *Stephanoforus diadematus*. **F.** *Tachyphonus coronatus* (female). **G.** *Thamnophilus ruficapillus*. **H.** *Synallaxis cinerascens*. **I.** *Tangara desmaresti*. **J.** *Stephanoxis lalandi* (male). **K.** *Sittasomus griseicapillus*. **L.** *Tricothraupis melanops* (male).

obs.; 2 specimens, sex indet.

There is a specimen collected by E. Kaempfer in 1929 at "Segredo do Veado" in the Caparaó Mountains (AMNH 317631). This species is very common (Ridgely et al. 2015), but there were no other records from the park until now, more than 80 years later.

Identification. Identified by having a uniformly brown body, with crown and throat faintly buff. Its songs are monotonous, randomly oscillating, and may last for a minute or more (Ridgely and Tudor 2009).

Furnariidae

***Cichlocolaptes leucophrus* (Jardine & Selby, 1830)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′25″S, 041°50′42″W; 1,651 m; 15.XII.2012; obs.; 3 specimens, sex indet. – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′31″S, 041°44′06″W; 1,000 m; 15.II.2014; obs.; 1 specimen, sex indet.

This Atlantic Forest endemic species is Endangered in both Minas Gerais and Espírito Santo. It was listed for Minas Gerais by Mattos (1993), but recent records are scarce (WikiAves, Xeno-canto, GBIF) and our new data is therefore important for this state. There is also a specimen collected by Emil Kaempfer (AMNH 316817) in 1929 at "Gruta da Pedra Menina" in the Caparaó Mountains. Since then, there were no records for the park until now, more than 80 years later.

Identification. This species was identified by its rufous-brown body, streaked on the back, belly and crown, with a pale buff superciliary and long, straight bill (Ridgely and Tudor 2009).

Cotingidae

***Carpornis cucullata* (Swainson, 1821)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′25″S, 041°50′42″W; up to 1,600 m; 28.X.2013; obs.; 1 specimen, sex indet. • same locality; 04.VI.2017; obs.; 1 specimen, sex indet. – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′27″S, 041°44′46″W; 1,182 m 19.VIII.2012; obs.; 1 specimen, sex indet.

This Atlantic Forest endemic species is Endangered in Minas Gerais, Vulnerable in Espírito Santo, and Near Threatened globally (IUCN 2020).

Identification. This species was identified by its voice, a powerful, far-carrying, abrupt "cuckoo-like" whistle that sounds like its Portuguese vernacular name (corocoxó) (Sick 2001; Ridgely and Tudor 2009; Ridgely et al. 2015).

***Procnias nudicollis* (Vieillot, 1817)**

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′31″S, 041°44′06″W; 19.IX.2012; obs.; 2 specimens, sex indet. • same locality; 21.IV.2013, obs.; 1 specimen, sex indet. • same locality; 23.XI.2013; obs.; 2 specimens, sex indet. • same locality; 15.II.2014; obs.; 2 specimens, sex indet.

This Atlantic Forest endemic species is Vulnerable in Espírito Santo and Endangered in Minas Gerais. Although relatively common in protected areas, including the PARNA Caparaó, populations of this species are declining due to habitat loss and illegal capture (BirdLife International 2021), placing it as globally Vulnerable according to IUCN (2020) and Birdlife International (2021).

Figure 7. Birds recorded in PARNA Caparaó. **A.** *Trogon surrucura* (male). **B.** *Trogon viridis* (male). **C.** *Thraupis ornata*. **D.** *Zonotrichia capensis*. **E.** *Turdus albicollis*. **F.** *Turdus leucomelas*.

Identification. This species was identified by its all white colour, with the ocular area and throat patch bare and bright greenish in males. However, it was usually identified by its characteristic very loud metallic call (Ridgely and Tudor 2009).

Onychorhynchidae

***Myiobius atricaudus* Lawrence, 1863**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′09″S, 041°50′59″W; 1,308 m; 17.VI.2016; obs.; 1 specimen, sex indet.

There is a specimen collected in Ibitirama (formerly Santa Barbara do Caparaó) by Kaempfer in 1929 (AMNH 317748). Another specimen was collected and deposited at the National Museum (MNRJ 48376) in Patrimônio da Penha, on the Pedra Escorada trail, in Divino de São Lourenço, Espirito Santo, in 2011.

Identification. This species was identified by its characteristic yellow rump and black tail. Body olive above, plain yellowish buff below (Ridgely and Tudor 2009). It has a long black tail with central rectrices longer than distal ones (JF Pacheco in WikiAves).

Tyrannidae

***Myiopagis caniceps* (Swainson, 1835)**

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′30″S, 041°44′11″W; 19.VIII.2012; obs.; 1 specimen, sex indet.

Identification. Body greyish, paler below and with whitish throat. Wings black with two pale bars and edging. Males are dull grey above, with a white coronal stripe. Females are olive above, with a grey head and a yellowish coronal stripe. The call is a fast and shrill chippering which descends and fades towards the end (Ridgely and Tudor 2009).

***Knipolegus lophotes* Boie, 1828**

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′40″S, 041°43′55″W; 23.XI.2013; obs.; 1 specimen, sex indet.

Identification. The body is large and black, with a prominent crest and black bill. This species has a white band hidden along the base of primaries, which can be seen in flight (Ridgely and Tudor 2009).

Fringillidae

***Euphonia chlorotica* (Linnaeus, 1766)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′42″S, 041°50′59″W; 17.VI.2016; obs.; 1 ♂.

Identification. Males are steely blue above, with a yellow forecrown and underparts and a diagnostically dark throat. The voice is clear, far-carrying, and consists of two notes (Ridgely and Tudor 2009).

Passerellidae

***Ammodramus humeralis* (Bosc, 1792)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°30′12″S, 041°49′04″W; 26.X.2012; obs.; 1 specimen, sex indet.

Identification. Upperparts are brownish grey, with blackish chestnut streaking. Underparts are whitish. Lores and bend of wings are yellow, and inner flight feathers have a rufous edge. The voice is high-pitched and quite musical, with several variations (Ridgely and Tudor 2009).

Icteridae

***Cacicus haemorrhous* (Linnaeus, 1766)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°25′01″S, 041°51′01″W; above 1,300 m; 28.X.2013; obs.; 2 specimens, sex indet.

There are two specimens collected by Kaempfer in 1929 at "Santa Barbara do Caparao" (AMNH 318075) and "Segredo do Veado" (AMNH 318076), in the Caparaó Mountains. Although common, especially in anthropized areas, there were no records of this species from the park in more than 80 years.

Identification. Distinguished by its glossy black body, with red lower back and rump, blue eyes, and yellow beak. The call consists of a variety of harsh or guttural sounds mixed with melodic whistles (Sick 2001; Ridgely and Tudor 2009).

Cardinalidae

***Piranga flava* (Vieillot, 1822)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°30′12″S, 041°49′04″W; 20.IX.2013; obs.; 1 ♂.

Identification. Males are red, brighter below and on forecrown. Lores, wings, and tail are duskier. Females have similar patterns, but yellowish olive above and bright yellow bellow (Ridgely and Tudor 2009).

***Habia rubica* (Vieillot, 1817)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′27″S, 041°49′18″W; 1,645 m; 25.I.2014; obs.; 1 specimen, sex indet.

Habia rubica is known to reach elevations up to 800 m (Ridgely et al. 2015), but there are records from several mountainous regions in Espírito Santo (see WikiAves) and at Serra do Brigadeiro (1,000–1,900 m), Minas Gerais (Simon et al. 1999). There is a specimen collected by Emil Kaempfer in 1929 at "Segredo do Veado" in the Caparaó Mountains (AMNH 318038). Although relatively common (Sick 2001), there were no records for the park until now, more than 80 years later.

Identification. This species was identified by its characteristic vocalization, which consists of a distinctive grating scold that is often repeated in a series. It has a sweet, melodic song consisting of a leisurely series of short, clear phrases (Ridgely and Tudor 2009).

Thraupidae

***Orchesticus abeillei* (Lesson, 1839)**

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°29′09″S, 041°49′17″W; 1,772 m; 26.X.2012; obs.; 2 specimens, sex indet. – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 1,256 m; 28.X.2013; obs.; 1 specimen, sex indet.

Identification. The bill is robust and the body is mostly brown, but more rufescent on the wings and tail, and duskier on the crown. The face, forehead, and broad superciliary are cinnamon, with a thin, blackish eyeline (Ridgely and Tudor 2009).

***Pipraeidea melanonota* (Vieillot, 1819)**

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′24″S, 041°44′26″W; 21.IV.2013; obs.; 1 ♂.

Identification. The bright blue crown and nape contrast with black mask; dusky blue above, uniform buff below (Ridgely and Tudor 2009).

***Thraupis cyanoptera* (Vieillot, 1817)**

Observations. BRAZIL – **Espírito Santo** • Santa Marta, PARNA Caparaó; 20°29′26″S, 041°44′24″W; 21.IV.2013; obs.; 1 specimen, sex indet.

Identification. The body is uniformly grey-blue but is larger than *T. sayaca*, with a heavier bill, deep-blue wings, a buffy belly, and dark lores (Ridgely and Tudor 2009).

***Sporophila nigricollis* (Vieillot, 1823)**
Figure 6B

Observations. BRAZIL – **Espírito Santo** • Pedra Menina, PARNA Caparaó; 20°30′12″S, 041°49′04″W; 1,417 m; 26.X.2012; obs.; 1 ♂.

Identification. Males have black crown, face, throat, and chest, contrasting with the pale yellow belly (Ridgely and Tudor 2009).

***Thlypopsis sordida* (d'Orbigny & Lafresnaye, 1837)**

Observations. BRAZIL – **Minas Gerais** • Alto Caparaó, PARNA Caparaó; 20°24′42″S, 041°50′57″W; 1,470 m; 11.V.2015; obs.; 1 ♂.

This species is known to reach elevations up to 1,200 m in forests or anthropized areas (Ridgely et al. 2015). It has been recorded in several mountainous regions in Espírito Santo (cf. WikiAves) and at Serra do Brigadeiro (1,000–1,900 m), Minas Gerais (Simon et al. 1999). There are two specimens collected by Emil Kaempfer in 1929 in Alto Caparaó, Minas Gerais (AMNH 317165 and 317166), but there have been no records from the park for more than 80 years until now.

Identification. Identified by having a gray body with an orange-rufous head which becomes yellow on face and throat (Ridgely and Tudor 2009).

Discussion

We recorded 216 species in Caparaó National Park, representing 32% of the birds of Espírito Santo (*n* = 654, Simon 2009; *n* = 666, WikiAves (accessed on 2021-3-24) and 27% of the birds of Minas Gerais (*n* = 777, Mattos et al. 1993; *n* = 800, WikiAves (accessed on 2021-3-24). The Brazilian Atlantic Forest has about 891 bird species (Moreira-Lima 2013), with 241 of them endemic (Stotz et al. 1996; Vale et al. 2018). Therefore, at PARNA Caparaó we recorded 24% of the Atlantic Forest avifauna and 28% of its endemism. These rates highlight the importance of this park in preserving the bird fauna of this biome.

We recorded two globally, three nationally, and 21 regionally threatened species. Moreover, we recorded 64 endemic species with a restricted distribution (Bencke et al. 2006). Despite these criteria, some of these species were very common in the park: *Penelope obscura*, *Phaethornis eurynome*, *Thalurania glaucopis*, *Pyrrhura frontalis*, *Ramphastos dicolorus*, *Pyriglena leucoptera*, *Drymophila genei*, *Drymophila ochropyga*, *Xiphorhynchus fuscus*, *Synallaxis ruficapilla*, *Conopophaga lineata*, *Chiroxiphia caudata*, *Mionectes rufiventris*, *Hylophilus poicilotis*, *Tangara desmaresti*, *Tangara cyanoventris*, *Thraupis ornata*, *Hemithraupis ruficapilla*, *Tachyphonus coronatus*, and *Microspingus lateralis.*

We recorded 17 species of birds for the first time from PARNA Caparaó. Of particular note are *Baryphthengus ruficapillus* and *Eleoscytalopus indigoticus* (Endangered in Espírito Santo), and *Piculus polyzonus* (nationally Endangered). We also draw attention to species such as *Tolmomyias poliocephalus*, *Arremon taciturnus*, and *Thalurania furcata*, which we observed at elevations higher than usual and were not frequent in our sampling. Moreover, *B. ruficapillus* and *A. taciturnus* are in Ruschi's list (1978), but since it contains some errors and needs reviewing, we did not consider his records.

From the species deposited in museum collections from the early 20th century, six were recorded only by us since then: *Chionomesa lactea*, *Dendrocincla turdina*, *Cichlocolaptes leucophrus*, *Cacicus haemorrhous*, *Thlypopsis sordida*, and *Habia rubica.* Although Kaempfer's itinerary included several sites in the Caparaó Mountains, we could not determine which ones were inside the park (Paynter and Traylor 1991).

The avifauna recorded by our fieldwork in PARNA Caparaó does not represent all the richness in the park, as shown by the species accumulation curve (Fig. 2). To achieve a more complete list, we compiled data published by other authors (Peixoto-Velho 1923; Bauer 1999; Sick 2001; Vasconcelos 2003; de Paula and Carvalho 2007), in online audio and image databases (WikiAves, Xeno-canto, Fonoteca Jacques Vielliard), and museums around the world together with our own. We produced a concatenated list with 348 bird species for PARNA Caparaó, 98 of them endemic to the Atlantic Forest Biome and 33 threatened species (Appendix Table A1).

Besides the 17 species newly documented here, 71 species were previously reported only by other authors (Peixoto-Velho 1923; Bauer 1999; Sick 2001; Vasconcelos 2003; de Paula and Carvalho 2007), nine species had records only in audiovisual databases (WikiAves, Xeno-canto, FNJV), and six species are based only on specimens in museums.

These specimens in museum collections were collected in the early 20th century and the species they represent have been undocumented since then: *Chelidoptera tenebrosa* (Ibitirama, Serra do Caparaó AMNH 317449), *Drymophila squamata* (Alto Caparaó, Serra do Caparaó, AMNH 316746, 316747), *Myiobius barbatus* (Ibitirama, Serra do Caparaó, AMNH 317747), *Phylloscartes oustaleti* (Segredo do Veado, Serra do Caparaó, AMNH 317713, 317714), *Euscarthmus meloryphus* (Alto Caparaó, Serra do Caparaó, AMNH 316912, 316913), and *Attila phoenicurus* (Segredo do Veado, Serra do Caparaó AMNH 317851). None of these species are threatened.

As for the species identified by Ruschi (1978) from the Caparaó Mountains, 185 are confirmed based on our fieldwork and the concatenated list.

Almost 24% of the Atlantic Forest avifauna is endemic (Stotz et al. 1996; Moreira-Lima, 2013; Vale et al. 2018). We recorded 31% endemic species and 28% on the concatenated list. About 10% of the species recorded in our study are threatened, or 9% in the concatenated list. These data show the importance of Caparaó National Park to the conservation of the bird fauna, confirming it as an Important Bird Area for having species that are globally threatened and with restricted distribution (Bencke et al. 2006).

PARNA Caparaó has a rich avifauna, a high level of endemism, and harbors several threatened species. The park attracts many tourists and has surrounding hotel buildings, as well as ecotourism activities, and agriculture and livestock, and continuous efforts for the conservation of the bird fauna of the park is of great importance.

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Authors' Contributions

Conceptualization: CDF. Formal Analysis: CDF. Investigation: CDF. Methodology: CDF, MNMB. Project administration: CDF. Visualization: CDF. Writing – original

draft: CDF, MNMB. Writing – review and editing: CDF, MNMB.

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Appendix

Table A1. Concatenated list of birds recorded in Parque Nacional do Caparaó. Present study = our data from 2012 to 2018. Bibliographic resources: 1 = Peixoto-Velho (1923), 2 = Sick (2001), 3 = Bauer (1999), 4 = de Paula and Carvalho (2007), 5 = Vasconcelos (2003), 6 = Ruschi (1978). Databases: AMNH = American Museum of Natural History, MNRJ = Museu de História Natural do Rio de Janeiro, MUZUSP = Museu de Zoologia da Universidade de São Paulo, MBML = Instituto Nacional da Mata Atlântica (formerly Museu de Biologia Mello Leitão), LACM = Natural History Museum of Los Angeles County, FNJV = Fonoteca Nacional Jacques Vielliard; ZUEC = Museu de Zoologia da Universidade Estadual de Campinas "Adão José Cardoso", XC = Xeno-canto, WA = WikiAves. Conservation status: CR = Critically endangered, EN = Endangered, VU = Vulnerable. Endemic species (Endem.), Endemic species with restricted distribution (ERD). Migratory status: M = Migratory, PM = Partially migratory.

Family	Species	Present study	Bibliographic resources	Databases	Status			Endem.	E.R.D.	Migr.
					Taxon	MG	BR			
Tinamidae Gray, 1839										
	Tinamus solitarius (Vieillot, 1819)		4, 6	AMNH	EN			1		
	Crypturellus obsoletus (Temminck, 1815)	1	3, 4, 6	AMNH, WA						
	Crypturellus tataupa (Temminck, 1815)	1							1	
	Rhynchotus rufescens (Temminck, 1815)			XC						
Anatidae Leach, 1820										
	Amazonetta brasiliensis (Gmelin, 1789)		3							
Cracidae Rafinesque, 1815										
	Penelope superciliaris Temminck, 1815	1	4, 6							

Family	Species	Present study	Bibliographic resources	Databases	Status			Endem.	E.R.D.	Migr.
					Taxon	MG	BR			
	Penelope obscura Temminck, 1815	1	2, 3, 4, 6	AMNH, FNJV, WA						
Odontophoridae Gould, 1844										
	Odontophorus capueira (Spix, 1825)	1	4, 6		EN	EN		1		
Columbidae Leach, 1820										
	Columba livia Gmelin, 1789		3, 4							
	Patagioenas picazuro (Temminck, 1813)	1	3, 4	WA						
	Patagioenas cayennensis (Bonnaterre, 1792)	1	3, 4	WA						
	Patagioenas plumbea (Vieillot, 1818)	1	3, 4, 6	WA						
	Leptotila verreauxi Bonaparte, 1855	1	1, 3, 4, 6	AMNH						
	Leptotila rufaxilla (Richard & Bernard, 1792)	1	3, 4	WA						
	Zenaida auriculata (Des Murs, 1847)		4							
	Columbina talpacoti (Temminck, 1810)	1	1, 3, 4, 5, 6,							
	Columbina squammata (Lesson, 1831)	1	4	WA						
Cuculidae Leach, 1820										
	Guira guira (Gmelin, 1788)		1, 3, 4, 6							
	Crotophaga ani Linnaeus, 1758		3, 4, 6	AMNH						
	Tapera naevia (Linnaeus, 1766)	1	3, 4, 6							
	Piaya cayana (Linnaeus, 1766)	1	3, 4, 6	AMNH, MNRJ, XC						
Caprimulgidae Vigors, 1825										
	Nyctidromus albicollis (Gmelin, 1789)	1	1, 3, 4, 6	AMNH, MNRJ						
	Hydropsalis longirostris (Bonaparte, 1825)		2, 3, 5, 6	MNRJ, WA						
	Hydropsalis torquata (Gmelin, 1789)	1	3	WA						
	Hydropsalis forcipata (Nitzsch, 1840)		4, 6	AMNH, WA	CR			1		
Apodidae Olphe-Galliard, 1887										
	Streptoprocne zonaris (Shaw, 1796)	1	3, 4, 6	WA						
	Chaetura meridionalis Hellmayr, 1907	1	3							M
Trochilidae Vigors, 1825										
	Florisuga fusca (Vieillot, 1817)		4, 6					1		
	Glaucis hirsutus (Gmelin, 1788)		4, 6							
	Phaethornis squalidus (Temminck, 1822)		6	AMNH						
	Phaethornis pretrei (Lesson & Delattre, 1839)	1	1, 3, 4, 6							
	Phaethornis eurynome (Lesson, 1832)	1	3, 4, 6	AMNH, WA				1	1	
	Colibri serrirostris (Vieillot, 1816)	1	3, 4, 5, 6	XC, WA						
	Anthracothorax nigricollis (Vieillot, 1817)		4, 6							
	Lophornis magnificus (Vieillot, 1817)		6	AMNH						
	Heliodoxa rubricauda (Boddaert, 1783)	1	1, 3, 6	WA				1	1	
	Heliomaster squamosus (Temminck, 1823)	1								
	Calliphlox amethystina (Boddaert, 1783)	1	4, 6							
	Chlorostilbon lucidus (Shaw, 1812)	1	1, 3, 4, 6	AMNH, MNRJ, WA						
	Stephanoxis lalandi (Vieillot, 1818)	1	1, 2, 3, 4, 5, 6	AMNH, MNRJ, XC, WA	EN			1	1	
	Campylopterus largipennis (Boddaert, 1783)	1								
	Thalurania furcata (Gmelin, 1788)	1								
	Thalurania glaucopis (Gmelin, 1788)	1	3, 6	AMNH				1	1	
	Eupetomena macroura (Gmelin, 1788)		3, 4, 6	WA						
	Aphantochroa cirrochloris (Vieillot, 1818)	1	4, 6					1	1	
	Chrysuronia versicolor (Vieillot, 1818)	1	6	MNRJ						
	Leucochloris albicollis (Vieillot, 1818)	1	1, 3, 4, 5, 6	AMNH, XC, WA				1	1	
	Chionomesa fimbriata (Gmelin, 1788)	1	4							
	Chionomesa lactea (Lesson, 1832)	1	6	AMNH						
	Chlorestes notata (Reich, 1793)		4, 6							
Rallidae Rafinesque, 1815										
	Laterallus melanophaius (Vieillot, 1819)		3							
	Mustelirallus albicollis (Vieillot, 1819)		3, 6							
	Pardirallus nigricans (Vieillot, 1819)		3, 4, 6							
	Aramides cajaneus (Statius Müller, 1776)	1	4							
	Aramides saracura (Spix, 1825)	1	3	WA				1	1	
	Gallinula galeata (Lichtenstein, 1818)		3							
Charadriidae Leach, 1820										
	Vanellus chilensis (Molina, 1782)	1	3, 4, 6,							
Jacanidae Chenu & Des Murs, 1854										
	Jacana jacana (Linnaeus, 1766)		3, 4, 6							

Family	Species	Present study	Bibliographic resources	Databases	Status			Endem.	E.R.D.	Migr.
					Taxon	MG	BR			
Ardeidae Leach, 1820										
	Ardea alba Linnaeus, 1758		3, 4							
	Syrigma sibilatrix (Temminck, 1824)		4							
Cathartidae Lafresnaye, 1839										
	Coragyps atratus (Bechstein, 1793)	1	2, 3, 4, 6							
	Cathartes aura (Linnaeus, 1758)	1	3, 4							
	Cathartes burrovianus Cassin, 1845	1								
Accipitridae Vigors, 1824										
	Leptodon cayanensis (Latham, 1790)		4	AMNH						
	Spizaetus tyrannus (Wied, 1820)		6	WA						
	Harpagus diodon (Temminck, 1823)	1		AMNH, WA						M
	Ictinia plumbea (Gmelin, 1788)	1	4, 6							PM
	Accipiter striatus Vieillot, 1808		4	WA						
	Geranospiza caerulescens (Vieillot, 1817)		4, 6							
	Heterospizias meridionalis (Latham, 1790)	1	3, 4, 6							
	Rupornis magnirostris (Gmelin, 1788)	1	3, 4, 6	WA						
	Parabuteo unicinctus (Temminck, 1824)		4, 6							
	Parabuteo leucorrhous (Quoy & Gaimard, 1824)		3							
	Geranoaetus albicaudatus (Vieillot, 1816)	1	3, 4, 6	WA						
	Buteo brachyurus Vieillot 1816		4							
	Buteo albonotatus Kaup, 1847	1								
Tytonidae Mathews, 1912										
	Tyto furcata (Temminck, 1827)		4, 6							
Strigidae Leach, 1820										
	Megascops choliba (Vieillot, 1817)		4, 6							
	Megascops atricapilla (Temminck, 1822)		4, 6		VU			1		
	Pulsatrix koeniswaldiana (Bertoni & Bertoni, 1901)	1		WA				1	1	
	Strix hylophila Temminck, 1825		4	AMNH, XC, WA				1		
	Glaucidium brasilianum (Gmelin, 1788)	1								
	Athene cunicularia (Molina, 1782)		3							
Trogonidae Lesson, 1828										
	Trogon viridis Linnaeus, 1766	1	4, 6							
	Trogon surrucura Vieillot, 1817	1	3	AMNH, WA				1	1	
	Trogon rufus Gmelin, 1788	1	3	AMNH, MNRJ, WA						
Momotidae Gray, 1840										
	Baryphthengus ruficapillus (Vieillot, 1818)	1			EN			1	1	
Alcedinidae Rafinesque, 1815										
	Megaceryle torquata (Linnaeus, 1766)	1	4							
Galbulidae Vigors, 1825										
	Jacamaralcyon tridactyla (Vieillot, 1817)		6	AMNH						
Bucconidae Horsfield, 1821										
	Chelidoptera tenebrosa (Pallas, 1782)			AMNH						
	Malacoptila striata (Spix, 1824)		6	AMNH						
	Nystalus chacuru (Vieillot, 1816)	1	3, 4	WA						
Ramphastidae Vigors, 1825										
	Ramphastos vitellinus Lichtenstein, 1823		3, 4, 6							
	Ramphastos dicolorus Linnaeus, 1766	1	3, 4	AMNH, WA				1	1	
	Pteroglossus bailloni (Vieillot, 1819)	1	4, 6	WA		VU		1	1	
	Pteroglossus aracari (Linnaeus, 1758)	1	4							
Picidae Leach, 1820										
	Picumnus cirratus Temminck, 1825	1	3, 4, 6	AMNH						
	Melanerpes candidus (Otto, 1796)		1, 3, 4, 6							
	Melanerpes flavifrons (Vieillot, 1818)		3, 6		VU			1		
	Veniliornis maculifrons (Spix, 1824)	1	1, 3, 6	MNRJ, WA				1	1	
	Campephilus robustus (Lichtenstein, 1818)	1	1, 3, 6	WA				1	1	
	Dryocopus lineatus (Linnaeus, 1766)	1	3, 4							
	Celeus flavescens (Gmelin, 1788)		6	AMNH						
	Piculus polyzonus (Valenciennes, 1826)	1					EN	1		
	Piculus aurulentus (Temminck, 1821)	1	3, 4	XC, WA				1	1	
	Colaptes melanochloros (Gmelin, 1788)		4, 6	AMNH						
	Colaptes campestris (Vieillot, 1818)	1	1, 3, 4, 5, 6	WA						

Family	Species	Present study	Bibliographic resources	Databases	Status			Endem.	E.R.D.	Migr.
					Taxon	MG	BR			
Cariamidae Bonaparte, 1850										
	Cariama cristata (Linnaeus, 1766)	1	3, 4, 6							
Falconidae Leach, 1820										
	Herpetotheres cachinnans (Linnaeus, 1758)	1	3							
	Micrastur ruficollis (Vieillot, 1817)	1	3							
	Micrastur semitorquatus (Vieillot, 1817)	1	4, 6							
	Caracara plancus (Miller, 1777)	1	3, 4, 6	WA						
	Milvago chimachima (Vieillot, 1816)	1	3, 4, 6	WA						
	Falco sparverius Linnaeus, 1758		3, 4, 6							
	Falco deiroleucus Temminck, 1825			WA						
	Falco femoralis Temminck, 1822		4							
Psittacidae Rafinesque, 1815										
	Brotogeris tirica (Gmelin, 1788)	1	4, 6					1	1	
	Pionopsitta pileata (Scopoli, 1769)		1, 3, 6	MNRJ	EN			1		
	Pionus maximiliani (Kuhl, 1820)	1	1, 3, 4	MNRJ						
	Amazona vinacea (Kuhl, 1820)	1	3, 4	WA	EN	VU	VU	1	1	
	Amazona farinosa (Boddaert, 1783)	1		MNRJ	EN	CR				
	Pyrrhura frontalis (Vieillot, 1817)	1	1, 3, 4, 6	AMNH, MNRJ, WA				1	1	
	Pyrrhura leucotis (Kuhl, 1820)		4		EN	CR	VU	1		
	Aratinga auricapillus (Kuhl, 1820)		3	XC						
	Primolius maracana (Vieillot, 1816)	1	6	WA						
	Psittacara leucophthalmus (Statius Müller, 1776)	1	3, 4, 6	WA						
Thamnophilidae Swainson, 1824										
	Terenura maculata (Wied, 1831)		3					1		
	Formicivora serrana Hellmayr, 1929			XC						
	Rhopias gularis (Spix, 1825)	1	3, 6	MNRJ				1	1	
	Dysithamnus stictothorax (Temminck, 1823)		3, 6	WA				1		
	Dysithamnus mentalis (Temminck, 1823)	1	3, 4	AMNH						
	Herpsilochmus rufimarginatus (Temminck, 1822)	1								
	Thamnophilus ruficapillus Vieillot, 1816	1	1, 2, 3, 5	MNRJ, XC, WA						
	Thamnophilus caerulescens Vieillot, 1816	1	1, 3, 4, 6	AMNH, MNRJ, WA						
	Taraba major (Vieillot, 1816)	1	4, 6							
	Hypoedaleus guttatus (Vieillot, 1816)	1	4	AMNH	VU			1	1	
	Batara cinerea (Vieillot, 1819)	1	3, 4, 6	WA	VU					
	Mackenziaena leachii (Such, 1825)	1	2, 3, 4, 5, 6	AMNH, MNRJ, XC, WA	EN			1	1	
	Mackenziaena severa (Lichtenstein, 1823)	1	3, 6	AMNH, WA				1	1	
	Myrmoderus loricatus (Lichtenstein, 1823)		3	AMNH				1		
	Pyriglena leucoptera (Vieillot, 1818)	1	3, 4	AMNH, WA				1	1	
	Drymophila ferruginea (Temminck, 1822)	1	3, 4, 6	AMNH, WA				1	1	
	Drymophila genei (Filippi, 1847)	1	2, 3, 4, 5	AMNH, MNRJ, XC, WA	EN	VU		1	1	
	Drymophila ochropyga (Hellmayr, 1906)	1	3, 4					1	1	
	Drymophila squamata (Lichtenstein, 1823)			AMNH						
Conopophagidae Sclater & Salvin, 1873										
	Conopophaga melanops (Vieillot, 1818)	1	4					1	1	
	Conopophaga lineata (Wied, 1831)	1	3, 4, 6	MNRJ, WA				1	1	
Grallariidae Sclater & Salvin, 1873										
	Grallaria varia (Boddaert, 1783)	1	3, 6		EN	CR	VU			
Rhinocryptidae Wetmore, 1926 (1837)										
	Merulaxis ater Lesson, 1830		3, 6		EN			1		
	Eleoscytalopus indigoticus (Wied, 1831)	1			EN			1	1	
	Scytalopus speluncae (Ménétriès, 1835)	1	2, 3, 5, 6	AMNH, MNRJ, MBML, XC, WA	EN			1	1	
Formicariidae Gray, 1840										
	Chamaeza campanisona (Lichtenstein, 1823)	1	2, 6		EN					
	Chamaeza meruloides Vigors, 1825	1	3, 4	WA				1	1	
Scleruridae Swainson, 1827										
	Sclerurus scansor (Ménétriès, 1835)		3, 4					1		
Dendrocolaptidae Gray, 1840										
	Sittasomus griseicapillus (Vieillot, 1818)	1	3, 4, 6	AMNH, MNRJ, WA						
	Dendrocincla turdina (Lichtenstein, 1820)	1	6	AMNH				1	1	
	Dendrocolaptes platyrostris Spix, 1825	1	1, 3	WA						

Family	Species	Present study	Bibliographic resources	Databases	Status			Endem.	E.R.D.	Migr.
					Taxon	MG	BR			
	Xiphocolaptes albicollis (Vieillot, 1818)	1	3, 4, 6	AMNH, WA						
	Xiphorhynchus fuscus (Vieillot, 1818)	1	3, 4, 6	AMNH, WA				1	1	
	Campylorhamphus falcularius (Vieillot, 1822)	1	3, 4, 6	XC, WA				1	1	
	Lepidocolaptes squamatus (Lichtenstein, 1822)	1	3	AMNH, WA				1	1	
Xenopidae Bonaparte, 1854										
	Xenops minutus (Sparrman, 1788)	1								
	Xenops rutilans Temminck, 1821	1	3	WA						
Furnariidae Gray, 1840										
	Furnarius figulus (Lichtenstein, 1823)		3, 4							
	Furnarius rufus (Gmelin, 1788)	1	1, 3, 4, 6	MNRJ						
	Lochmias nematura (Lichtenstein, 1823)	1	1, 3, 4, 5, 6	AMNH, MNRJ, WA						
	Anabazenops fuscus (Vieillot, 1816)	1	3, 4, 6	AMNH, MNRJ				1	1	
	Cichlocolaptes leucophrus (Jardine & Selby, 1830)	1		AMNH	EN	EN		1	1	
	Heliobletus contaminatus Pelzeln, 1859			AMNH, WA				1		
	Anabacerthia amaurotis (Temminck, 1823)		3	AMNH				1		
	Anabacerthia lichtensteini (Cabanis & Heine, 1859)	1	3, 6	AMNH, WA				1	1	
	Syndactyla rufosuperciliata (Lafresnaye, 1832)	1	1, 3, 4, 6	MNRJ, WA						
	Dendroma rufa (Vieillot, 1818)	1	3	AMNH						
	Automolus leucophthalmus (Wied, 1821)		6	AMNH						
	Phacellodomus rufifrons (Wied, 1821)	1	3, 4, 5	WA						
	Phacellodomus ferrugineigula (Pelzeln, 1858)		3					1		
	Asthenes moreirae (Miranda-Ribeiro, 1906)	1	1, 3, 4, 5, 6	LACM, MNRJ, XC, WA	CR			1	1	
	Cranioleuca pallida (Wied, 1831)	1	3, 6	AMNH, MNRJ, XC				1	1	
	Certhiaxis cinnamomeus (Gmelin, 1788)		3							
	Synallaxis cinerascens Temminck, 1823	1	2, 3	WA						
	Synallaxis ruficapilla Vieillot, 1819	1	1, 3, 4, 6	MNRJ, MUZUSP, WA				1	1	
	Synallaxis spixi Sclater, 1856	1	3, 4, 5	AMNH, MNRJ, XC, WA						
	Synallaxis albescens Temminck, 1823		4							
	Synallaxis frontalis Pelzeln, 1859		4							
Pipridae Rafinesque, 1815										
	Ilicura militaris (Shaw & Nodder, 1809)	1	3, 4, 6	MNRJ, WA				1	1	
	Chiroxiphia caudata (Shaw & Nodder, 1793)	1	3, 4, 6	AMNH, WA				1	1	
	Manacus manacus (Linnaeus, 1766)		4, 6	AMNH						
	Machaeropterus regulus (Hahn, 1819)		4					1		
	Ceratopripra rubrocapilla (Temminck, 1821)		4, 6		VU					
Cotingidae Bonaparte, 1849										
	Carpornis cucullata (Swainson, 1821)	1	1, 3, 4, 6	MNRJ, WA	VU	EN		1	1	
	Carpornis melanocephala (Wied, 1820)		4		EN	CR	VU	1		
	Phibalura flavirostris Vieillot, 1816		6	AMNH						
	Lipaugus lanioides (Lesson, 1844)		1, 3, 6	AMNH, MNRJ	VU			1		
	Procnias nudicollis (Vieillot, 1817)	1	3, 4, 6	AMNH, WA	VU	EN		1	1	
Tityridae Gray, 1840										
	Schiffornis virescens (Lafresnaye, 1838)	1	3, 4, 6	AMNH, MNRJ				1	1	
	Laniisoma elegans (Thunberg, 1823)		6	AMNH						
	Tityra cayana (Linnaeus, 1766)		4, 6							
	Pachyramphus viridis (Vieillot, 1816)	1	4	AMNH						
	Pachyramphus castaneus (Jardine & Selby, 1827)	1	3, 6	AMNH, WA						
	Pachyramphus polychopterus (Vieillot, 1818)	1	3, 6							PM
Oxyruncidae Ridgway, 1906 (1831)										
	Oxyruncus cristatus Swainson, 1821		3, 6							
Onychorhynchidae Tello, Moyle, Marchese & Cracraft, 2009										
	Myiobius barbatus (Gmelin, 1789)			AMNH						
	Myiobius atricaudus Lawrence, 1863	1	6	AMNH, MNRJ						
Platyrinchidae Bonaparte, 1854										
	Platyrinchus mystaceus Vieillot, 1818	1	3, 4, 6	AMNH, WA						
Rhynchocyclidae Berlepsch, 1907										
	Mionectes rufiventris Cabanis, 1846	1	1, 3, 4, 6	AMNH, WA				1	1	
	Leptopogon amaurocephalus Tschudi, 1846	1	3, 4	WA						
	Phylloscartes ventralis (Temminck, 1824)	1	2, 3, 4, 6	AMNH, XC, WA						
	Phylloscartes oustaleti (Sclater, 1887)			AMNH						

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					Taxon	MG	BR			
	Phylloscartes difficilis (Ihering & Ihering, 1907)		2, 6	WA				1		
	Tolmomyias sulphurescens (Spix, 1825)	1	3, 4, 6	AMNH						
	Tolmomyias poliocephalus (Taczanowski, 1884)	1								
	Todirostrum poliocephalum (Wied, 1831)	1	3, 4	AMNH				1	1	
	Todirostrum cinereum (Linnaeus, 1766)	1	3							
	Poecilotriccus plumbeiceps (Lafresnaye, 1846)	1	3, 4, 6							
	Myiornis auricularis (Vieillot, 1818)		3, 6	AMNH, WA				1		
	Hemitriccus diops (Temminck, 1822)	1	3, 6	AMNH				1	1	
	Hemitriccus orbitatus (Wied, 1831)		4		EN			1		
	Hemitriccus nidipendulus (Wied, 1831)			WA				1		
Tyrannidae Vigors, 1825										
	Hirundinea ferruginea (Gmelin, 1788)	1	3, 4	AMNH, WA						
	Euscarthmus meloryphus Wied, 1831			AMNH						
	Tyranniscus burmeisteri (Cabanis & Heine, 1859)	1	3	AMNH						
	Camptostoma obsoletum (Temminck, 1824)	1	3, 4, 6	AMNH, WA						
	Elaenia flavogaster (Thunberg, 1822)	1	3, 6	WA						
	Elaenia chilensis Hellmayr, 1927		3, 6							
	Elaenia mesoleuca (Deppe, 1830)			XC, WA						
	Elaenia obscura (d'Orbigny & Lafresnaye, 1837)	1	4	AMNH, XC, WA						
	Myiopagis caniceps (Swainson, 1835)	1	4							
	Capsiempis flaveola (Lichtenstein, 1823)	1	1, 3	AMNH, WA						
	Phaeomyias murina (Spix, 1825)			WA						
	Phyllomyias virescens (Temminck, 1824)	1	3, 6	WA				1	1	
	Phyllomyias fasciatus (Thunberg, 1822)		3, 6	WA						
	Phyllomyias griseocapilla Sclater, 1862		3					1		
	Polysticus superciliaris (Wied, 1831)			AMNH, XC, WA						
	Serpophaga nigricans (Vieillot, 1817)		3	AMNH, WA						
	Serpophaga subcristata (Vieillot, 1817)	1	3, 4, 5, 6	AMNH, WA						
	Attila phoenicurus Pelzeln, 1868			AMNH						
	Attila rufus (Vieillot, 1819)	1	3, 4, 6					1	1	
	Legatus leucophaius (Vieillot, 1818)	1								PM
	Ramphotrigon megacephalum (Swainson, 1835)		6	AMNH						
	Myiarchus swainsoni Cabanis & Heine 1859		3, 6							
	Myiarchus ferox (Gmelin, 1789)	1	3, 4, 6	AMNH						
	Myiarchus tyrannulus (Statius Müller, 1776)	1								
	Sirystes sibilator (Vieillot, 1818)	1	3, 6	AMNH						
	Pitangus sulphuratus (Linnaeus, 1766)	1	1, 3, 4							PM
	Machetornis rixosa (Vieillot, 1819)		3							
	Myiodynastes maculatus (Statius Müller, 1776)	1		WA						PM
	Megarynchus pitangua (Linnaeus, 1766)	1	3, 4, 6	AMNH						
	Myiozetetes cayanensis (Linnaeus, 1766)			WA						
	Myiozetetes similis (Spix, 1825)	1	3, 4, 6							
	Tyrannus albogularis Burmester, 1856		4							
	Tyrannus melancholicus Vieillot, 1819	1	3, 4, 6	AMNH						PM
	Tyrannus savana Daudin, 1802		3	WA						
	Empidonomus varius (Vieillot, 1818)	1		AMNH, ZUEC						
	Colonia colonus (Vieillot, 1818)	1	3, 4	AMNH, WA						
	Arundinicola leucocephala (Linnaeus, 1764)		3							
	Fluvicola nengeta (Linnaeus, 1766)	1	3, 4							
	Muscipipra vetula (Lichtenstein, 1823)	1	1, 3, 6	AMNH, WA				1	1	
	Gubernetes yetapa (Vieillot, 1818)		3, 4	WA						
	Myiophobus fasciatus (Statius Müller, 1776)	1	1, 3	AMNH, WA						PM
	Cnemotriccus fuscatus (Wied, 1831)	1								
	Lathrotriccus euleri (Cabanis, 1868)	1	3	AMNH, WA						PM
	Contopus cinereus (Spix, 1825)		3							
	Satrapa icterophrys (Vieillot, 1818)		3							
	Knipolegus lophotes Boie, 1828	1	2, 3, 4, 6	WA						
	Knipolegus nigerrimus (Vieillot, 1818)	1	1, 2, 3, 4, 5, 6	AMNH, WA				1	1	
	Knipolegus cyanirostris (Vieillot, 1818)	1	1, 3	WA						
	Xolmis velatus (Lichtenstein, 1823)		3	WA						
	Nengetus cinereus (Vieillot, 1816)		3, 4, 6							

Family	Species	Present study	Bibliographic resources	Databases	Status			Endem.	E.R.D.	Migr.
					Taxon	MG	BR			
Vireonidae Swainson, 1837										
	Cyclarhis gujanensis (Gmelin, 1789)	1	1, 3, 4, 5, 6	AMNH,XC, WA						
	Hylophilus amaurocephalus (Nordmann, 1835)		4	AMNH						
	Hylophilus poicilotis Temminck, 1822	1	3, 4, 6	XC, WA				1	1	
Hirundinidae Rafinesque, 1815										
	Pygochelidon cyanoleuca (Vieillot, 1817)	1	3, 4, 6	AMNH, XC, WA						
	Stelgidopteryx ruficollis (Vieillot, 1817)		3	AMNH						
	Progne tapera (Vieillot, 1817)		3, 4							
	Progne chalybea (Gmelin, 1789)	1	3, 4							PM
	Tachycineta leucorrhoa (Vieillot, 1817)		3							
Troglodytidae Swainson, 1831										
	Troglodytes musculus Naumann, 1823	1	3, 4, 6	AMNH						
Donacobiidae Aleixo & Pacheco, 2006										
	Donacobius atricapilla (Linnaeus, 1766)		3							
Turdidae Rafinesque, 1815										
	Turdus flavipes Vieillot, 1818	1	3, 4, 6	AMNH, XC, WA						M
	Turdus leucomelas Vieillot, 1818	1	3, 4	WA						
	Turdus rufiventris Vieillot, 1818	1	1, 3, 4, 6	XC, WA						
	Turdus amaurochalinus Cabanis, 1850	1	3, 4	XC, WA						PM
	Turdus subalaris (Seebohm, 1887)	1	4					1	1	PM
	Turdus albicollis Vieillot, 1818	1	3, 6	AMNH						
Mimidae Bonaparte, 1853										
	Mimus saturninus (Lichtenstein, 1823)	1	3, 4, 6	AMNH, XC, WA						
Passeridae Rafinesque, 1815										
	Passer domesticus (Linnaeus, 1758)		3, 4							
Motacilidae Horsfield, 1821										
	Anthus chii Vieillot, 1818		3, 4							
	Anthus hellmayri Hartert, 1909		5	WA						
Fringillidae Leach, 1820										
	Spinus magellanicus (Vieillot, 1805)		4, 6	WA						
	Chlorophonia cyanea (Thunberg, 1822)		3, 4	WA						
	Euphonia chlorotica (Linnaeus, 1766)	1	3							
	Euphonia violacea (Linnaeus, 1758)		4							
	Euphonia pectoralis (Latham, 1801)		3, 6					1		
Passerellidae Cabanis & Heine, 1850										
	Ammodramus humeralis (Bosc, 1792)	1	4							
	Arremon taciturnus (Hermann, 1783)	1								
	Arremon semitorquatus Swainson, 1838		1, 6	AMNH				1		
	Zonotrichia capensis (Statius Müller, 1776)	1	1, 3, 4, 5, 6	AMNH, FNJV, XC						
Icteridae Vigors, 1825										
	Leistes superciliaris (Bonaparte, 1850)		4							
	Cacicus haemorrhous (Linnaeus, 1766)	1		AMNH						
	Molothrus bonariensis (Gmelin, 1789)	1	3, 4, 6							
	Gnorimopsar chopi (Vieillot, 1819)	1	3, 4, 6	AMNH						
	Agelasticus cyanopus (Vieillot, 1819)		3							
	Chrysomus ruficapillus (Vieillot, 1819)		3							
Parulidae Wetmore, Friedmann, Lincoln, Miller, Peters, van Rossem, Van Tyne & Zimmer 1947										
	Geothlypis aequinoctialis (Gmelin, 1789)		3, 4, 5, 6	AMNH, XC, WA						
	Myiothlypis flaveola Baird, 1865		1	WA						
	Basileuterus culicivorus (Deppe, 1830)	1	1, 3, 4, 6	AMNH, XC, WA						
Mitrospingidae Barker, Burns, Klicka, Lanyon & Lovette, 2013										
	Orthogonys chloricterus (Vieillot, 1819)		3, 6					1		
Cardinalidae Ridgway, 1901										
	Piranga flava (Vieillot, 1822)	1	3, 4, 6	AMNH						
	Habia rubica (Vieillot, 1817)	1	6	AMNH						
	Cyanoloxia brissonii (Lichtenstein, 1823)		6	AMNH						
Thraupidae Cabanis, 1847										
	Orchesticus abeillei (Lesson, 1839)	1	3	AMNH				1	1	
	Embernagra platensis (Gmelin, 1789)		2, 3, 4, 5, 6	XC, WA						
	Embernagra longicauda Strickland, 1844		5							
	Emberizoides herbicola (Vieillot, 1817)		3, 4							

Family	Species	Present study	Bibliographic resources	Databases	Status			Endem.	E.R.D.	Migr.
					Taxon	MG	BR			
	Hemithraupis ruficapilla (Vieillot, 1818)	1	3, 4, 6	AMNH, WA				1	1	
	Tersina viridis (Illiger, 1811)		3, 4, 6							
	Cyanerpes cyaneus (Linnaeus, 1766)		4							
	Dacnis cayana (Linnaeus, 1766)	1	3, 4, 6	AMNH						
	Saltator similis d'Orbigny & Lafresnaye, 1837	1	1, 3, 4, 6	AMNH, XC, WA	VU					
	Saltator maxillosus Cabanis, 1851		2, 3, 4					1		
	Coereba flaveola (Linnaeus, 1758)	1	1, 3, 4, 6	AMNH, XC						
	Asemospiza fuliginosa (Wied, 1830)			WA						
	Volatinia jacarina (Linnaeus, 1766)	1	3, 4, 6	AMNH						
	Trichothraupis melanops (Vieillot, 1818)	1	1, 3, 4, 6	AMNH, MNRJ, WA						
	Coryphospingus pileatus (Wied, 1821)	1	1							
	Tachyphonus coronatus (Vieillot, 1822)	1	3	AMNH, WA				1	1	
	Ramphocelus bresilia (Linnaeus, 1766)		3					1		
	Sporophila nigricollis (Vieillot, 1823)	1	3, 4							
	Sporophila ardesiaca (Dubois, 1894)			WA				1		
	Sporophila caerulescens (Vieillot, 1823)	1	3, 4, 5, 6	AMNH, XC, WA						PM
	Thlypopsis sordida (d'Orbigny & Lafresnaye, 1837)	1		AMNH						
	Castanozoster thoracicus (Nordmann, 1835)		1, 2, 4, 6					1		
	Donacospiza albifrons (Vieillot, 1817)		2, 5	WA						
	Microspingus lateralis (Nordmann, 1835)	1	1, 2, 3, 4, 5	AMNH, XC, WA	VU			1		
	Sicalis flaveola (Linnaeus, 1766)	1	1, 3, 4, 6	WA						
	Haplospiza unicolor Cabanis, 1851	1	1, 3, 4, 6	AMNH, XC, WA				1	1	
	Pipraeidea melanonota (Vieillot, 1819)	1	3, 6	WA						
	Stephanophorus diadematus (Temminck, 1823)	1	1, 2, 3, 4, 5, 6	AMNH, FNJV, XC, WA	VU					
	Cissopis leverianus (Gmelin, 1788)	1	3	AMNH						
	Schistochlamys ruficapillus (Vieillot, 1817)	1	1, 2, 3, 4, 5, 6	AMNH, WA						
	Thraupis sayaca (Linnaeus, 1766)	1	3, 4, 6	AMNH, WA						
	Thraupis cyanoptera (Vieillot, 1817)	1	3, 4, 6					1	1	
	Thraupis palmarum (Wied, 1821)	1	4							
	Thraupis ornata (Sparrman, 1789)	1	3, 4	AMNH, WA				1	1	
	Stilpinia cayana (Linnaeus, 1766)	1	3, 4							
	Tangara seledon (Statius Müller, 1776)		3, 4					1		
	Tangara cyanoventris (Vieillot, 1819)	1	3, 4, 6	WA				1	1	
	Tangara desmaresti (Vieillot, 1819)	1	1, 3, 4, 5, 6	AMNH, MNRJ, XC, WA				1	1	